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Palladio Londinensis;

O R,

The LONDON Art of Building.

IN THREE PARTS.

- I. Containing a *Demonstration* of all the Geometrical Problems which are necessary to describe SQUARES, CIRCLES, OVALS, POLYGONS, ARCHES, and GROINS.

The most approved Methods for Mensuration of *Superficies*, and *Solids*, applied to the Measurement of all Sorts of Artificers Works concerned in BUILDING.

The Prices of the *Labour* and *Materials*, of the several kinds of Works performed by DIGGERS, BRICKLAYERS, MASONS, CARPENTERS, JOINERS, SMITHS, PLAISTERERS, PLUMBERS, GLASIERS, PAINTERS, and PAVIOURS; with Directions for making an *Estimate* of the Expence of any Fabric, great or small.

The Prices of all Sorts of Iron work: *viz.* Nails, and what each Sort ought to weigh. The Prices of Locks, Bolts, Hinges, Latches, &c. Axes, Hammers, Saws, Chizzels, Augers, &c.

- II. Containing plain and easy Directions for the Construction of the FIVE ORDERS OF ARCHITECTURE, with their several *Pedestals*, *Columns*, and *Entablatures*, accurately described; and a *Parallel* drawn between *this* and Mr. GIBBS's Method, and *that* of the BUILDER'S REPOSITORY; shewing how the Orders are to be used over each other; with their *Intercolumniations*, &c.

A large Variety of *Frontispieces* and *Doors*, suited to each Order; the Proportion of *Windows*, *Piers* for *Gates*, *Obelisks*, *Block Cornices*, with the Proportion of *Rooms*, *Cieling-Pieces*, *Frets*; also *Chinese* Lattice-works for *Pailings*, *Gates*, *Hatches*, &c.

An easy and entirely New Method of finding the exact Module or *Diameter* for the erecting Columns or Pilasters THREE several Ways in a just Proportion. 1. *Arithmetically*. 2. *Geometrically*, by Scale and Compass. 3. *Inspectionally*, by a Table; which shews, in proportion to *any* Height given, the exact *Diameter*; also how to calculate the *Diameter* of the Orders, according to the Proportions laid down by Mr. GIBBS, or any other Author.

And also the Method of Reducing any Module or *Diameter* (from 6 to 24 Inches) into *Feet* and *Inches*, by a New Inspectional Table; whereby the Trouble of dividing a Module into *Minutes* is avoided, and the whole performed by the common *two Foot Rule*.

- III. Copiously treating of the several kinds of *Stair-Cases*; the various Forms of their twisted *Rails*: Also the best Rules, with Variety of Examples for Forming, Framing, and Trussing all manner of *ROOFS* for Buildings, public or private, though the *PLAN* be *square* or *bow*. I. With a Collection of the *Ground Rules* necessary to be observed in Architecture and Building.

The Whole illustrated with Fifty-four COPPER PLATES.

To which is annex'd,

The BUILDER'S DICTIONARY.

By WILLIAM SALMON.

The FIFTH EDITION.

With great Alterations and Improvements, By E. HOPPUS, Surveyor to the Corporation of the London Assurance; and other Eminent Hands.

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The London and Lancashire

In Three Parts

The first part of the work contains a general description of the London and Lancashire, and a detailed account of the various branches of the business. The second part contains a description of the various branches of the business, and a detailed account of the various branches of the business. The third part contains a description of the various branches of the business, and a detailed account of the various branches of the business.

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T H E P R E F A C E.

I SHALL not expatiate on the Usefulness and Excellency of the Art of Architecture, which is too well known to require any Encomiums; but rather chuse to employ the few Pages left me to inform the Reader, in the first place, with the Motives which induced me to publish this Treatise; and then with the Method I have taken in the Performance of it.

The principal Motive was my Desire to improve the young Practitioners in this Art, who, for the most Part, are grossly ignorant of the true Proportion, which is the Foundation and very Soul of Architecture.

The next was the Deficiency in all the Treatises of Architecture written by Vitruvius, Palladio, Schamozzi, Serlio, Vignola, and many other celebrated Architects.

For notwithstanding they contain many excellent Rules, yet, upon mature Consideration, it will be found, that some things very material are still wanting, in order for the rendering the Study and Practice of Architecture plain and easy to Persons of common Capacities.

To set this in a stronger Light, it will be proper to enquire into the following Particulars.

I. What is necessary to be known by every one who desires to draw, or work, any of the Five Orders of Architecture, according to true Proportion, to any Height required.

II. What the Rules are, already given by Authors, for the obtaining this Knowledge.

In answer to the first; the Knowledge absolutely necessary to be obtained by every one, who desires either to draw, or work, any of the Five Orders of Architecture according to true Proportion to any Height required, is,

The understanding perfectly well how to find an exact Diameter, in Proportion to the limited Height he is obliged to draw, or work to, in any of the following Cases; viz.

1. To the Column alone: Or, 2. To the Column with its Entablature: Or, 3. When the Column, with its Entablature, is erected on a Pedestal: Or, 4. To the Column and Pedestal only, without its Entablature.

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All this Variety of Cases does often occur in Practice, and therefore is necessary to be known; because every one of these Cases requires a different Diameter to the same Height, in proportion thereto: So that it is as impossible for any one that is ignorant in this Point, to draw, or erect, either Column or Pilaster in true Proportion, as it is for any one to erect a House, to such a Length, Breadth, and Height, without making use of some sort of Measure.

I shall now shew, in answer to the second Query, what are the Rules already given, by Authors, for the obtaining of this Knowledge, so absolutely essential to be known.

It would indeed be too tedious to give a particular Account of all the Authors who have treated on this Subject; I shall therefore but briefly touch on some of them, tho' withal the most celebrated.

In the several Treatises written by Palladio, Scamozzi, Serlio, Vignola, Le Clerc, and Evelyn, there is not a Word mentioned for the instructing a young Architect how to module, or find the Diameter of an Order; which, to me is vastly surprizing, That in a point so very necessary, which they must most certainly know this to be, they should be wholly silent: Nor can I account for it, unless it were designedly to shut the Eyes of the Ignorant, that they might still remain so.

The best Rules that ever I saw for this Purpose, are those given by Mr. William Halfpenny, and Mr. Langley; and they are these that follow.

Mr. Halfpenny, in his Art of Sound Building, gives these Rules:

When any Height is determined for a Column, with its Entablature, what must be the Diameter in proportion to that Height?

*" 1. Of the Tuscan Order, according to Palladio, when the whole
" Height is given, you must divide it into 35 equal Parts, and four of
" those Parts must be the Diameter of the Column; but if it stands on
" a Sub-Plinth, you must divide the given Height into 39 equal Parts,
" and four of those Parts must be the Diameter of the Column.*

*" 2. Of the Doric Order; divide the given Height into 10 equal
" Parts, and take one for the Diameter of the Column; but if it
" stands on a Pedestal, the given Height must be divided into 74 equal
" Parts, and six of these Parts must be the Diameter of the Column.*

*" 3. Of the Ionic Order; Divide the given Height into 65 equal
" Parts, and take six for the Diameter of the Column; but if it stands
" on a Pedestal, you must divide the given Height into 81 equal Parts,
" and take six for the Diameter of the Column.*

" 4. Of

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“ 4. Of the Corinthian Order; Divide the given Height into $85 \frac{1}{2}$ equal Parts, and $7 \frac{1}{2}$ of these Parts must be the Diameter of the Column.

“ 5. Of the Composite Order; Divide the given height into 12 equal Parts, and take one for the Diameter of the Column; but if it stands on a Pedestal, the given Height must be divided into 46 equal Parts, and three must be the Diameter of the Column.”

These are all the Rules and Cases delivered by Mr. Halpenny, for finding a proportional Diameter to any Height required. And here it is to be observed, that he gives Rules for finding the Diameters but of two of these four Cases mentioned before, which are so necessary to be known.

Mr. Langley, in his Builder's Chest-Book, gives this Rule; “ Your Order being agreed on, you must Account how many Minutes are contained in the Height of the Column and its Entablature, and then divide the Height of the Room, &c. into as many equal Parts as there are Minutes in the Height of your Order, and taking 60 of those Parts, That shall be the Diameter of your Column, and Module to work by.”

Here it is to be observed that he takes notice of, and gives Rules for, but one of those four Cases beforementioned.

Now these are the best, and all the Rules I ever met with for finding the Diameter of a Column, or Module to work by: And even both these are very troublesome and intricate, if not obscure, especially to such as are unacquainted with the Mathematicks.

The Matter standing thus, I shall in the next Place proceed to supply this Deficiency, and remove the intricacy in which these Authors have left us.

In which observe:

That the Method I advance in this Treatise is entirely new; whereby the Module, or Diameter, in proportion to any given Height, is found three Ways: First, by Arithmetical Calculation: Secondly, Geometrically by Scale and Compass; and, Thirdly, by an Inspectional plain Table.

I have given in Chap. VIII. Part the Second, a Method of finding the exact Diameter by Arithmetic in any of the Cases beforementioned; and for the effecting of this, you will find a Table, containing such Heights, in all the Cases, that require a Foot Diameter, in proportion thereunto: So that when you have occasion to calculate a Diameter to a limited Height in any Case, have Recourse to the Table for the Case you require the Diameter to be calculated to; and taking from thence the Height, there set down (in the Manner there taught,) the Diameter in proportion to that Height is 12 Inches; therefore say, by the Rule of Three,

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*If such a Height requires 12 Inches, what will such a Height require?
And one single Operation will give you the Diameter sought. See the
Examples in the Chapter above-mentioned.*

*The second Way of doing this is Geometrically by Scale and Compass.
See Plate X. Though this Scale is chiefly designed for drawing, yet it
may also be applied to Practice, and thereby become of universal Use:
For this Scale shews, by Inspection, and by the Help of a Square, and
a Pair of Compasses, the exact Diameter in proportion to any Height
of Columns and Pilasters, and in all the Variety of Cases beforemen-
tioned; and that with less Time and Trouble than the former.*

*This Method is much easier than by Arithmetic; because any Person may
make use of this way, who can but read the Construction thereof in
Chap. IX. Part the Second; altho' they understand nothing of Arithmetic.*

*This Scale is of excellent Use in delineating Architecture in true Pro-
portion on Paper, or the like: For by setting the given Height, or that
you intend your Draught shall be of, upon the Scale; it at once gives
you the Diameter in proportion to that Height.*

*This Method is less troublesome than either of the former, and an-
swers in all the Variety of Cases beforementioned.*

*The third Method is by an Inspectional Plain Table, Plate XIII,
which shews by Inspection, not only the exact Diameter in Inches, but
also the sixteenth Part of an Inch.*

*I shall therefore submit it to the Judgment of any impartial Person;
whether any or all these Ways are not plainer and easier to be under-
stood, and also more expeditious, than any of those Rules delivered by
Mr. Halpenny, Langley, or any other Author whatsoever.*

*I should not have introduced the first Part of this Treatise, had it
not been with a View of making it of general Use to all Sorts of Persons
concerned in Building.*

*Architecture is an Art founded on the Principles of Geometry, and
therefore it is highly necessary that every one who would attain to any
Perfection in it, should first learn Geometry: But as it is reasonably
to be expected, that many Persons, in whose Hands this Treatise may
come, may not be thus qualified; therefore I have for the Help of such,
in this first Part, collected the most useful Problems in Geometry, ne-
cessary to be learned, from Authors of known Reputation, viz. Mr.
Le Clerc, Mandey, Hawney. And also the Mensuration of Super-
ficies and Solids, with some Improvements for the more easy understand-
ing of them. See Plate I, II, III.*

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You have here also Directions for measuring several Artificers Works, concerned in Building, viz. Carpenters, Joiners, Diggers, Bricklayers, Plaisterers, Masons, Glaziers, Painters, Plumbers, Paviours, and Smiths; and under each Head the Prices of several Sorts of Work and Materials; collected partly from several approved Authors, and the rest from my own Experience.

You will likewise find Directions for making an Estimate of the Charge of erecting any House of any Height and Bigness, built of Brick and Timber, with which I conclude the first Part.

In the SECOND PART you have the Five Orders of Columns accurately described by Modules and Minutes, with their Entablatures and Pedestals, in Plate 4, 5, VI, VII, VIII, and a Description of them in the first five Chapters, where the principal Parts of each Order are summed up, for the more ready finding the Height of every principal Part. And also some Parallels of the Proportions used by Mr. Gibbs, and in the Builder's Repository; and being set in the same Light and Manner, and by observing Plate A, will, at one View, shew the Difference, if any.

Plate X has been already described.

Plate XI shews how to reduce Modules and Minutes into Feet and Inches, and is of excellent Use in working the Five Orders of Architecture: For having found a proportional Diameter, the Table for dividing the Module into 60 equal Parts or Minutes to work the Order by, is here spared, and a common Two Foot Rule made use of to supply its place, as plainly appears in the Construction thereof, in Chap. X.

In Chap. XI, Plate XII, you have the Description, and Use of a new invented Scale for the ready dividing Modules into Minutes.

In Plate XIV you have the Mouldings made use of in Architecture, and the Imposts and Arches of the Five Orders.

In Plate XV you have the Construction of divers sorts of useful Scales.

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In Plate XVII you have the method of describing the Ionic Volute.

In Plate XVIII you have Directions for drawing an intire Order, and also how to diminish a Column.

In Plate XIX you have Instructions for drawing a Frontispiece.

In Plates XX, XXI, XXII, XXIII, XXIV, XXV, XXVI, you have the Frontispieces according to the Tuscan, Doric, Ionic, Corinthian, and Composite Orders; with their several Doors, inscribed thereon, suitable to each Order.

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In Plates XXVII, XXVIII, XXIX, XXX, and C, you have the Ornaments of Doors and Windows, as practised by Palladio, &c. and his Measures are here reduced to Modules and Minutes; the Module being the Aperture or Breadth of the Door. And also several Additional Plates not in the First Edition, viz. Plate B. shews the Intercolumniations of each Order; Plate D, Piers for Gates; Plate E, Obelisks; Plate F, Block Cornices; the Plates G, H, and I are seven different Designs of Chimney-pieces; Plate K shews the Proportion of Rooms; Plate L, Ceiling-pieces; Plate M, different Ornaments, called Fretts; Plates Q and R are new Designs of Geometrical Pailing or Chinese Lattice Work, for Gates, Pailing, Hatches, &c. and Plate N, how the Orders are to be used over each other; and the proportioning of Rooms, &c.

The THIRD PART contains a Description of several Sorts of Stair-Cases, and the Formation of twisted Rails; and the best Rules for framing all manner of Roofs, whether Square or Bevel. Likewise the Ground Rules of Architecture; or the most necessary Rules to be observed for Building in general. The Plates belonging to these are XXXI, XXXII, XXXIII, XXXIV, O, P, XXXV, and XXXVI.

You have also an Alphabetical Explanation of all the Terms used in Architecture: And lastly;

An Inspectional Table shewing the Value of one Foot in Length of Timber, squared or cut to any Scantling or Size at any Price.

Thus I have given you an Account of the whole; which is, I presume, all that is necessary to be said in Relation to the Method herein proposed, for the Advancement of others in a thorough Knowledge of Architecture; and humbly hope this Piece will not be rivalled, much less surpassed by any Performance yet extant.

P. S. The Reader will find the Improvements made in this Edition to be very Useful, and too many to be here specified, and I suppose the Instructions inserted concerning Party-Walls can need no Apology.

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PART the Third.

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THE
London ART and METHOD
OF
BUILDING.

PART the First.

Contains such GEOMETRICAL DEFINITIONS *and* PROBLEMS,
as are necessary to be known by those who are desirous to
understand the Art of Building.

CHAP. I.

DEFINITIONS. Plate I.

1.  POINT has no Parts: That is, a Geometrical Point is not any Body (or Quantity), but only an Assignable Place, in any Body (or Quantity) noted by a Point, and is made with your Compasses, Pen, or Pencil, &c. as A.

Such a Place may be conceived so infinitely small as to be void of Length, Breadth, and Thickness; and therefore a Point may be said to have no Parts.

2. A LINE is a Body (or Quantity) having Length without any Consideration of Breadth or Thickness. Of Lines there are Three Sorts, viz. Curved (that is crooked) Lines, as A; Streight Lines as B; and Mixed Lines, which are compounded of both the former, as C.

B

3. PARALLEL

3. PARALLEL LINES are those that lie *equally distant* from one another in all their *Parts*, viz. Such Lines as being infinitely extended, will never *meet*, as X.

4. LINES not PARALLEL, but INCLINING (viz. *leaning*) one towards another *meet*, and make an *Angle*; the Point where they *meet* is called the Angular Point thus <

5. Of ANGLES there are *Three* Sorts, viz. *Right Angles* E; *Obtuse Angles* F; and *Acute Angles* G.

6. A SUPERFICIES or SURFACE is the Upper, or very *Outside* of any visible Thing. But by *Superficies* in GEOMETRY, is meant only so much of the *Outside* of any thing that is *inclosed* within a *Line*, or *Lines*, according to the *Form* or *Figure* of the Thing designed; and hath *Length* and *Breadth*, but (is conceived to have) no *Thickness*. Consequently the *Bounds*, or *Limits*, of a *Superficies* are *Lines*; as D.

Note. The *Superficies* of any *Figure* is usually called its *AREA*.

7. A CIRCLE is a *plain regular Figure*, whose *Area* is *bounded*, or *limited*, by one continued *Line*, called the CIRCUMFERENCE, or PERIPHERY, of the *Circle*, made by the Motion of the *Compasses* round a *Point* called its *Center*. A *Line* drawn through the *Center* is called the *Diameter*, as H I.

8. A TRIANGLE is a *Figure* contained within the *Limits* of *Three Right Lines*, called *Sides*, including *Three Angles*. Of *Triangles*; there are several Sorts, as the RIGHT ANGLED TRIANGLE K. The EQUILATERAL TRIANGLE L. The ISOSCELES TRIANGLE M. And the SCALENOUS TRIANGLE N.

Of FOUR-SIDED FIGURES there are also many Sorts, as, The SQUARE O; which is a *plain regular Figure* whose *Superficies* is limited by four equal *Sides*, all at *Right Angles* with one another.

The RHOMBUS, or *Diamond like Figure*, is that which has *Four* equal *Sides*, but no *Right Angle*. That is, a *Rhombus* is a *Square* moved out of its *right Position*, as Q.

A PARALLELOGRAM (often called an *Oblong*, or *long Square*) is a *Figure* that hath *four right Angles*, and its *two opposite Sides* equal, as P.

A RHOM-

A RHOMBOIDES is an *oblique-angled Parallelogram*; that is, it is a *Parallelogram* moved out of its *right Position*, as the Figure marked R.

Note. All *four-sided Figures*, which differ from those before-mentioned, are called TRAPEZIAS. That is, when they have neither *opposite Sides*, nor *opposite Angles equal*, as S.

A POLYGON is a *Figure* that has more than *four Sides*, and of these there are several Sorts; a *Figure* having *five equal Sides*, and *equal Angles*, is called a PENTAGON; one of *six Sides* a HEXAGON; one of *seven Sides* a HEPTAGON; one of *eight Sides* an OCTAGON; one of *nine Sides* a NONAGON; one of *ten Sides* a DECAGON, &c.

CH A P. II.

P R O B. I. Fig. 1.

FROM any Point in a given right Line, to erect a Perpendicular.

Let AB be a right Line given, and upon it (from the Point *g*) let it be required to erect the Perpendicular *g k*.

First, Open your Compasses to any small Distance, and, setting one Foot in the Point *g*, with the other Foot make the two Marks *c* and *d*.

Secondly, Open the Compasses to any other Distance, (greater than the Former) and setting one Foot in *d*, with the other describe the Arch *ee*; and removing the Compasses to *c*, describe the Arch *ff*, crossing the former in the Point *k*. Lastly, from *g* to *k* draw the right Line *g k*, it will be the Perpendicular required.

P R O B. II. Fig. 2.

TO divide a right Line, as AB, into two equal Parts, in a given Point, as G, by a right Line, at *ee*, perpendicular thereto.

Let AB be a Line given, to be divided into two equal Parts by a Perpendicular in the Point G , by the Perpendicular Line ee .

First, Open your Compasses to any Distance greater than half the Line AB , and setting one Foot of the Compasses in A , with the other describe the Arch dd .

Secondly, Set one Foot of the Compasses in B , and describe the Arch cc , crossing the former in the Points e, e . Lastly, Draw the Line ee , and it shall divide the given Line AB into two equal Parts in the Point G , and shall also be perpendicular thereunto.

P R O B. III. Fig. 3.

TO erect a Perpendicular upon the End of a right Line.

Let AB be a right Line given, and from the End B , let it be required to erect a Perpendicular Be .

First, Open your Compasses to any small Distance, and setting one Foot of the Compasses in B , pitch down the other Foot at adventure, as at the Point C ; and that Foot of the Compasses resting in C , turn the other Leg about till it cross the given Line in the Point D , and the Foot still resting in C , with the other describe the Arch FG over the given Point B : then laying a Ruler from D to C ; it will cut the Arch GF in e . Lastly, draw the Line Be which will be the Perpendicular required.

P R O B. IV. Fig. 4.

FROM a given Point over the right Line, to let fall a Perpendicular to that Line.

Let AB be a Line given, and from the Point E , let it be required to let fall the Perpendicular EF .

First, Open your Compasses to any Distance greater than from E to F ; and setting one Foot of the Compasses in E , with the other describe the Arch CD .

Secondly, (by the second Problem) divide the Line CD in two equal Parts in the Point F .

Lastly, Draw the right Line EF , which will be the Perpendicular sought.

P R O B.

P R O B. V. Fig. 5.

FROM a given Point which is just over, or very near, the End of a right Line, to let fall a Perpendicular thereon.

Let AB be a Line given; and from the Point C , let it be required to let fall a Perpendicular CE .

First, From the Point C draw a Line CF , crossing the given Line AB ; which Line divide into two equal Parts in the Point D , by *Prob. II.* then set one Foot of the Compasses in D , open the other to the Point C , and describe the Arch CE , cutting the given Line AB in the Point E . Lastly, Draw the Line CE , which will be perpendicular to AB , and near to the End thereof.

P R O B. VI. Fig. 6.

A right Line being given; to draw another right Line, which shall be parallel thereunto, at any Distance required.

Let AB be a right Line given; and let it be required to draw another right Line FG , parallel thereunto, at the Distance of the Line C .

First, Take with your Compasses the Length of the Line C , and setting one Foot of the Compasses in a , with the other describe the Arch of a Circle cc ; then keeping the same Opening of the Compasses, describe, from b , another Arch dd .

Lastly, Lay a Ruler to these two Arches cc and dd , so that it may only touch the very Top of them, and draw the Line FG , which will be the parallel Line required.

P R O B. VII. Fig. 7.

TO make a Geometrical Square, whose Sides shall all be equal to a right Line given.

Let AB be a Line given, and let it be required to make the Geometrical Square $CDEF$, each of whose Sides shall be equal to the given Line AB .

I

First,

First, Draw the Line EF equal in Length to the given Line AB , and upon the End thereof F (by the third Problem) erect the Perpendicular FD , equal in Length also to the given Line AB .

Again, Take the given Line AB in your Compasses, and setting one Foot of them in E , with the other describe the Arch aa ; also set one Foot in F , and with the Distance ED , describe the Arch mm , cutting the former Arch in the Point C .

Lastly, Draw the Lines CD , and CE , so shall you have formed the Geometrical Square $CDEF$.

P R O B. VIII. Fig. 8.

TO make a Parallelogram, whose Sides shall be equal to any two Lines given.

Let A and B be the two Lines given, and let it be required to make the Parallelogram $CDGF$, whose two shortest Sides shall be equal to the Line B , and its longest Sides to the Line A .

First, Take in your Compasses the Length of the longest Line A , and draw the Line CD , equal thereunto, and upon C erect the perpendicular Line CG equal to the Line B .

Secondly, Take the Line B in your Compasses, and setting one Foot in D , describe the Arch ee ; also take in your Compasses the Distance from D to G , and setting one Foot of the Compasses in C , describe the Arch oo , crossing the former in the Point F .

Lastly, Draw the Lines GF and DF , which will form the required Parallelogram $DCGF$.

P R O B. IX. Fig. 9.

TO make a Triangle, whose Sides shall be respectively equal to three given right Lines.

Let the three given Lines be A , B and C , and let it be required to make a Triangle, whose three Sides are equal to the three given Lines.

First, Take in your Compasses the longest of the given right Lines, and draw a Line equal thereto as DE ; then, secondly, take in your Compasses the Length of the given Line B , and setting one Foot of the Compasses in D , with the other describe the Arch ee ;
Then

Then, thirdly, take in your Compasses the Length of the given Line C, and setting one Foot of the Compasses in E, describe the Arch *aa*, crossing the former in the Point F. Lastly Draw the two right Lines DF and EF, so shall they constitute the Triangle DEF required.

P R O B. X. Fig. 10.

TO make an Angle equal to an Angle given.

Let ABC be an Angle given, and let it be required to make another Angle DFE equal thereunto.

First, Draw a right Line, as EF. Then the Compasses being opened to any convenient Distance, set one Foot in the given angular Point B, and describe an obscure Arch of a Circle, as GH, which must cut both the Sides of the Angle, viz. AB and BC. Secondly, The Compasses still resting at the same Distance, set one Foot in F and describe the Arch *ee*, making *ee* equal to GH. Lastly, From F, through the Point *e*, draw the Line DF, which will form the Angle DFE, equal to ABC, as was required.

P R O B. XI. Fig. 11.

TO make an equilateral Triangle whose Sides shall be all equal to a right Line given.

Let the given Line be A, whereof it is required to make an equilateral Triangle BCD.

First, Take between your Compasses the Length of the given Line A, and draw the Line BC, equal thereunto. Set then one Foot of the Compasses in B, and at the Distance of the given Line A, describe the Arch *aa*. The Compasses still remaining with the same Opening, remove the Foot of the Compasses from B to C; and with the other Leg describe the Arch *ee*. Lastly, Draw the Lines BD and DC, and it will complete the equilateral Triangle BCD required.

P R O B. XII. Fig. 12.

TO divide a Line given, into any Number of equal Parts.

I

Suppose

Suppose the right Line given be AB , and it is required to divide the same into ten equal Parts.

First, Draw another right Line of any Length, as CD , and set thereon ten equal Parts, taken of any Length also at Pleasure.

Secondly, Take between your Compasses, that Part of the Line which consists of those ten equal Parts, viz. from C to D , and by the foregoing Problem, make therewith an equilateral Triangle, as CDE .

Thirdly, Take between your Compasses, the Length of the given Line AB ; and setting one Foot of the Compasses in the Point E , make a Point on each of the two Sides of the Triangle ED and EC , as at a and e , and draw the Line ae ; which will then be equal to the given Line AB . Lastly, In Length from those Divisions on the Line CD , let Lines be drawn to the Point E cross the Line ae ; and the Crossings of those Lines will divide it into ten equal Parts as required.

P R O B. XIII. Fig. 13.

TO circumscribe a Circle about a Square; also to inscribe a Circle within a Square.

Let $ABCD$ be a Square given, about which let it be required to describe a Circle.

First, From the opposite Angles of the given Square, as from A to C and from B to D , draw the two Diagonals crossing each other in the Point a .

Secondly, Set one Foot of the Compasses in the Point a , and opening the other to any of the Angles of the Square, as from a to D , with that Distance describe the Circle, and it shall touch all the four Angles ABC and D , so have you circumscribed a Circle about a Square.

Again, to inscribe a Square within a Circle, divide one Side of it into two equal Parts, at O ; then set one Foot of the Compasses in a , and extending the other to O , describe a Circle with that Distance. This Circle will touch all the Sides of the Square, that is, will be inscribed within the Circle, as was required.

P R O B.

P R O B. XIV. Fig. 14.

T O describe a Circle that shall pass through any three given Points, that are not in a strait Line, as A, B, C.

First, Upon the Points A and B, with any Opening of the Compasses, describe two Arches to intersect each other as at *a* and *e*; Secondly, On the Points A C describe two more Arches to intersect each other in the Points *c c*, draw the Lines *a e* and *c c*, and where these two Lines intersect, as at *o*, place one Foot of the Compasses, and extend the other to any of the three given Points A, B, or C, and with the Distance describe the Circle A B C, and it will pass through the three given Points as required.

P R O B. XV. Fig. 15.

T O inscribe the largest Circle possible within a Triangle.

Let A B C be a Triangle given, within which let it be required to inscribe the largest Circle that may be, which shall touch all the three Sides thereof.

First, Divide any two of the Angles of the Triangle into two equal Parts, as the Angles A B C, by the Line C *a* and A *e*, cutting each other in the Point *o*, so shall *o* be a Center; upon which if you describe a Circle to touch the three Sides of the Triangle, no larger Circle can be described therein.

P R O B. XVI. Fig. 16.

T O find the Side of any regular Polygon, not exceeding ten Sides, (as in Definition 9.) that this is to be inscribed in any given Circle, as A C B D.

First, through the Center O draw the Diameter A B, dividing the Circle into two equal Parts.

Secondly, Take in your Compasses half the Diameter A O or O B, and setting one Foot in A, with the other make the Marks K and L, and draw the Line K L, which shall be the Side of a Triangle that will be inscribed in that Circle.

C

Thirdly,

Thirdly, Draw the Line CD, through the Center O, cutting the Diameter A B at right Angles, and draw the Line A C, which shall be the Side of a Square that will be inscribed in that Circle.

Fourthly, Set one Foot of the Compaffes in G, and extend the other to C, and draw the Arch-Line C E; then draw the right Line C E, and that will be the Side of a Pentagon, inscribed within the Circle.

Fifthly, Any of the Semidiameters A O, O B, O C, or O D, are the Sides of a Hexagon, or Figure of six Sides, that may be inscribed in the Circle.

Sixthly, Half of the Line K L, namely K G or L G, is the Side of a Heptagon, or seven-sided Figure, inscribed in that Circle.

Seventhly, Divide the Line A C, into two equal Parts in F, and draw the Line O F I, cutting the Circumference of the Circle in I, so shall a Line drawn from A to I, be the Side of an Octagon, that may be inscribed within the Circle.

Eighthly, *Divide the Part of the Circle L A K, into three equal Parts*, one third Part thereof is from L to N, so a Line drawn from L to N, shall be the Side of a Nonagon, or Figure of nine Sides, that may be inscribed within this Circle.

Lastly, The Line O E is the Side of a Decagon, or Figure of ten Sides, that may be inscribed in this Circle.

P R O B. XVII. Fig. 17.

TWO right Lines being given, to find a mean Proportional.

Let the two Lines given be B and C, and let them be joined together in one right Line as A K; divide the Line A K into two equal Parts in the Point G, from whence describe the Semicircle A H K; then upon the Point I, where the two Lines B, C were joined, erect a Perpendicular I H which will meet the Semicircle in H, so shall the Line I H be the mean Proportional required.

P R O B. XVIII. Fig. 18.

TO make a Geometrical Square equal to a Triangle given.

and Method of Building.

11

Let BdE be a Triangle given, to be reduced into a Geometrical Square.

Extend the Side of the Triangle BE to O , making EO equal to half the Length of the Perpendicular of the Triangle AC . Secondly, Divide the Line BO into two equal Parts in K , and with the Distance KB describe the Semicircle BHO . Upon E erect the Perpendicular EH , meeting the Semicircle in H , so shall EH be the Side of a Geometrical Square, equal to the Triangle BdE .

P R O B. XIX. Fig. 19.

TO make a Geometrical Square equal in Area to a Parallelogram.

Let the long Square $AEIO$ be given to be reduced into a Geometrical Square, containing the same Quantity or Area.

First, Continue the Side IO of the long Square to Q ; making OQ equal to OE the shortest Side of the long Square.

Secondly, Divide the Line IQ into two equal Parts in F , upon which Point F , with the Distance FI or QF , describe the Semicircle of IBQ , and continue the Side OE to B , so shall BO be the Side of a Geometrical Square $BCOP$, which shall be equal in Quantity to the long Square $AEIO$.

P R O B. XX. Fig. 20.

TO make a Geometrical Square, equal in Quantity to two Geometrical Squares given.

Let the two Geometrical Squares given, be A and B .

First, Draw the Line CF , and equal in Length to one Side of the largest given Square A . Raise the perpendicular Line EF , equal in length to one Side of the smallest given Square B . Secondly, Draw the diagonal Line CE , so is CE the Side of the Geometrical Square $CEGO$, which is equal in Quantity to the two given Squares A and B .

P R O B. XXI. Fig. 21.

TO make an equilateral Triangle equal to two given equilateral Triangles.

Let the two given equilateral Triangles be A and B.

First, Draw a right Line CD equal in length to one Side of the given Triangle B. Erect the perpendicular Line DE, equal in length to one Side of the given Triangle A.

Lastly, Draw the diagonal Line CF, and therewith (by *Prob. 11.*) compleat the equilateral Triangle CEF, which shall be equal in Quantity to the two given equilateral Triangles A and B.

P R O B. XXII. *Fig. 22.*

TWO Circles being given, to make another Circle to contain the same Quantity.

Let the two Circles given, be F and G.

First, Upon the Diameter of the largest of the two given Circles at the Point D, erect the perpendicular Line DE, equal in length to the Diameter AB of the least given Circle.

Lastly, Draw the Line BE, and divide it into two equal Parts in O, take with your Compasses the Distance from B to O, or from O to E, set one Foot of the Compasses in the Point O, and describe a Circle. This Circle will be equal in Quantity to the two given Circles F and G.

P R O B. XXIII. *Fig. 23.*

TO make a Square, not having one to make it by.

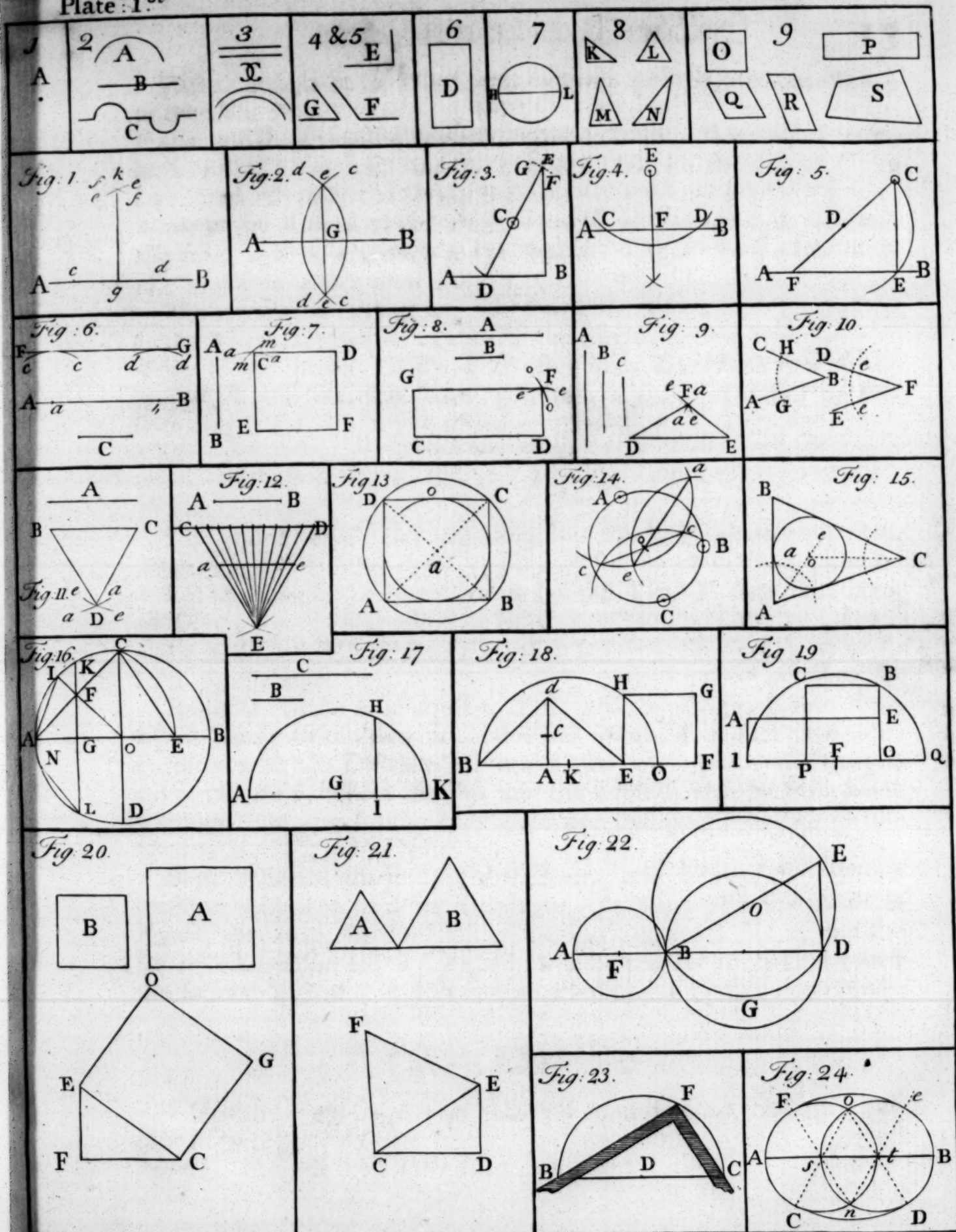
First, Draw a right Line BC, which divide into two equal Parts in the Point D; and upon D, with the Distance BD, describe the Semicircle BFC.

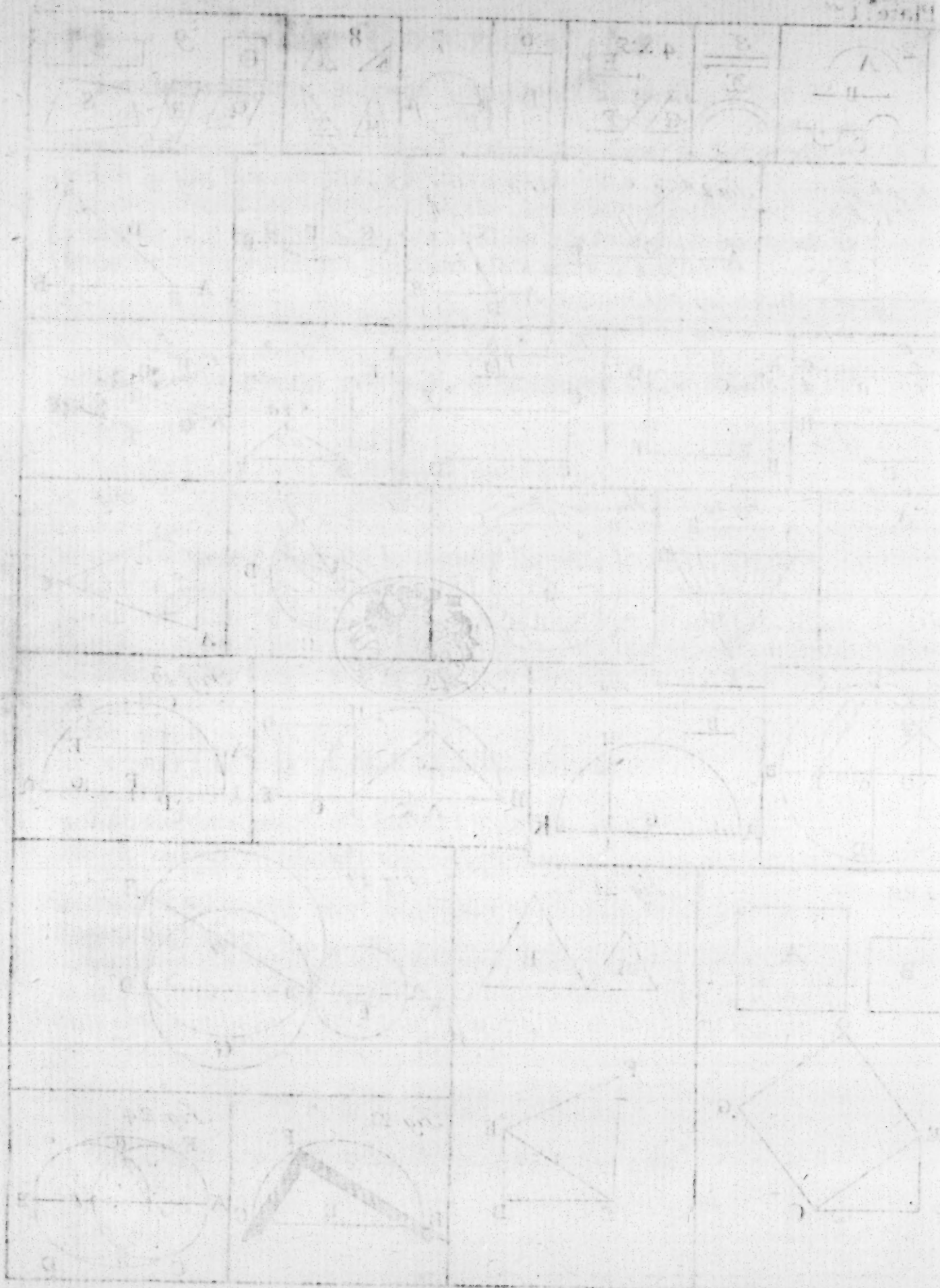
Secondly, In any Part of the Circumference thereof make a Point as at F; from which Point two right Lines being drawn to B and C, they shall constitute a Square, or right Angle, at the Point F; and so two Pieces of Wood so framed shall be a true Square.

P R O B. XXIV. *Fig. 24.*

OF Ellipsis, and the various Ways of describing them.

First;





First, To describe an Ellipsis to any given Length, without regard, to Breadth.

Let AB be the given Length. Divide it into three equal Parts, as $AstB$. Then with the Radius As , describe the Circle $A Fo$; and from t , the Circle $BDnsoe$.

Secondly, Lay a Ruler from n to s , and draw nF at pleasure; also from n to t , and draw ne at pleasure. Again from o to s draw oC , and from o to t draw oD .

Then with the Radius nF , on n describe the Arch Fe ; and on o , the Arch CD ; which compleats the Ellipsis or Oval required.

But as the shortest Diameter is oftentimes limited as well as the longest, I will therefore shew you two Ways of operating in that Case.

P R O B. XXV. Fig. 25. Plate II.

TO describe an Oval to any Length and Breadth given.

Let the longest Diameter given be the Line F , and the shortest G .

First, Make AB equal to F , and CD to G , dividing AB equally at right Angles in a .

Secondly, Make $A\odot$ equal to DC , and dividing $\odot B$ into three equal Parts; set off two of those Parts from a to b , and from a to c , then with the Distance cb make the two equilateral Triangles cdb and ceb , whose Angles are the Centers, and the Sides being continued are the Lines of Direction for the several Arches of the Oval AI , CF , BG , DH .

Note, Whereas *Carpenters, Bricklayers, and Masons, &c.* are oftentimes obliged to work an Architrave, &c. about Windows, of this Form, they may, by the Help of the four Centers c, d, b, e , and the Lines of Direction bd, ef, dg, ei , describe another Arch-Line round the former, and at any Distance required as $bifg$.

P R O B. XXVI. Fig. 26.

TO describe an Oval to any Length and Breadth required, another Way.

£

Let

Let it be required to describe the Oval $CE\ DF$, whose longest Diameter shall be equal to the given Line A , and shortest to the given Line B .

First, Draw the Line CD , equal in Length to A ; also EF equal in Length to B , and at right Angles with CD .

Secondly, Take the Distance CO or OD , and with it, from the Point E and F , describe the Arches b and f upon the Diameter CD .

Lastly, Strike in a Nail or Pin at b , and at f , the Intersections of those Arches with the Line CD , and put a Thread or String round them, of such a Length that the two Ends may just reach to E or F . Hold these two Ends tight between your Fingers, with a Black-lead Pencil (or other thing proper to mark with) between them, and those two Ends being carried round will cause the Pencil to describe the Oval or Ellipsis $EDFC$.

P R O B. XXVII. Fig. 27.

TO describe an Oval, or Ellipsis, to any Length and Breadth given, another Way, by the Intersection of Lines.

First, Draw the Line AB equal in Length to the longest Diameter given, and thereon describe a Circle; also on the same Center C describe another Circle equal to the shortest Diameter.

Secondly, Divide the outer Circle into any Number of Parts, the more the better, as here into 24; and carrying a Ruler through each of those Divisions to the Center C , you may divide the inner Circle into the like Number of Parts.

Lastly, Drawing Parallels to the Diameter from the inner Circle and Perpendiculars from the outward, their Points of meeting will form the Ellipsis, or Oval, required.

P R O B. XXVIII. Fig. 28.

TO find the Center and the two Diameters of an Oval.

Let $ABCD$ be the Oval proposed, whose Center and Diameters are to be found.

Draw at Pleasure the two parallel Lines QG , MO , bisect them in the Points H , N , and draw the Line VE , bisect it in K , and upon K , as a Center, describe a Circle at Pleasure as FLR , cutting

ting the Oval in the Points F, L; draw the right Line FL, bisect it in I, and through the Points IK draw the greatest Diameter AC; through the Center K draw the least Diameter BD, parallel to the Line FL, and you have what was required.

P R O B. XXIX. Fig. 29.

TO draw a spiral Line about a given right Line, as AC.

Divide half the right Line AC, into as many equal Parts as there are to be Revolutions, as here into 4.

Divide the half AI into four equal Parts IKGH. Divide also IK into two equal Parts in B. Upon the Point B, describe the Semicircles KI, GF, HE, AD; upon the Point I describe the Semicircles KF, GE, HD, AC; and you will have the spiral Line required.

P R O B. XXX. Fig. 30.

UPON a given right Line to describe any Polygon from a Pentagon to a Duodecagon; that is, from a Figure of five Sides to a Figure of twelve Sides.

Let AB be a Line given, upon which a Pentagon, &c. is to be made.

Bisect the Line AB in Q, and erect the perpendicular QP. From the Point A describe the Arch BH, and from B the Arch AH, and divide BH into six equal Parts, as H 1, 1 2, 2 3, 3 4, 4 5, 5 B.

This done, let a Pentagon be required. From the Point H, with the Interval H 1, one of those equal Parts of BH, describe the Arch, 1 17, and the Point I will be the Center of a Circle containing the given Line AB five times, the Interval IB being the Radius thereof. If you take the Point H for the Center of another Circle, and HB for the Radius, this new Circle will contain the Line AB six times. From the Point 7, with the Radius 7 B, a Circle drawn will contain AB seven times.

Again, From the same Point H, with the Interval H 2, which makes two of the equal Parts of BH, describe the Arch 2 8; and from the Point 8, with the Radius 8 B, you may draw a Circle in which AB shall be the Side of an Octagon. From 9, with the

The Radius 9 B, you form a nine-sided Figure. From 10, a ten-sided Figure; and so on to 12.

P R O B. XXXI. Fig. 31.

TO describe a Scheme Arch, the Base and Perpendicular being given.

First, Draw the Line A B, and bisect it at right Angles by the Line $c f$, and from g to c set on the Height of the Arch and draw the Line $c B$; then from the Middle thereof erect a perpendicular Line, as $e d$, so as to cut the perpendicular Line $c f$; and the Intersection is the Center for describing the Arch required.

P R O B. XXXII. Fig. 32.

ANOTHER Way, by the Intersection of Lines.

First, Draw the Base Line A B, and bisect, or middle it, at c , from whence erect a Perpendicular $c d$ equal in length to twice the Height of the Arch required, and draw the Lines A d , and $d B$, and divide each Line into any Number of equal Parts, as here into 10, and drawing right Lines to every correspondent Division, as from 1 to 1, 2 to 2, &c. the Intersection of those Lines will form the Arch A $e B$; which was to be done.

P R O B. XXXIII. Fig. 33.

TO describe an Arch of equal Height to a Semicircle, but a greater Length on the Base.

Let A B c be a Semicircle, and $d g$ the Length of the Base given for the Arch to rise equal to the Semicircle. Through the Center of the Arch A $c B$ at e , draw the Line $c e f$ at right Angles to A B, and to any length at pleasure; from the Points c and g , taking for your Interval any Lines longer than what you may judge half the Distance between those Points amounts to, describe two Arches on either hand, cutting each other in a and i : draw a Line so as to cut the perpendicular Line $c f$ at O, and O is the Center for the Arch $d e g$ as required.

P R O B.

P R O B. XXXIV. Fig. 34.

TO describe an elliptic Arch on the shortest Diameter.

First, Draw the Diameter AB , and on the middle thereof at k , erect the Perpendicular ko , equal to the Height of the Arch; divide the Perpendicular ko into two equal Parts at e ; continue out the Line AB on both Sides at pleasure, and from the Point k , set on the Length of ko , as at c and d ; through the Points ce , de , draw the Lines cef and deg to a Length at Pleasure; and d , and c are Centers for the Arches Ag and Bf , and e the Center for the Arch gof , which will form the Arch required.

P R O B. XXXV. Fig. 35.

TO draw a Gothic Arch.

Take between your Compasses the Length of the Line AB , and on the Points A and B describe the Arches Ac and Bd , and it will compleat the Gothic Arch required.

P R O B. XXXVI. Fig. 36.

TO describe the Gothic Arch of another Form.

Divide the Line AB into three equal Parts, at c , d , B , take between your Compasses the Distance of two of these Parts, and on the Points c and d describe the Arches Ac and Bd , and you have your Desire.

P R O B. XXXVII. Fig. 37.

ANOTHER Form.

Divide the Line AB also into three equal Parts, at e , f , B , from the Points A and B let fall also the perpendicular Lines Ac and Bd , equal in Length to two of the Divisions of the Line AB ; draw the Lines cb and dg ; from the Points e , f , with the Length of fB , describe the Arches Ag and Bh , and from the Points c , d , describe the Arches gi , and ih , and it will compleat another Gothic Arch.

D

P R O B.

P R O B. XXXVIII. Fig. 38.

ANOTHER Form.

As before, Divide the Line AB into three equal Parts, as A *a*, *ab*, *bB*, and on the Points A, *a*, *b*, B, with the Distance of two Divisions make four Arches intersecting at *c*, *d*. Through the intersecting Points *c*, *d*, and the Divisions *a*, *b*, draw the Lines *c*, *f* and *d*, *e*, and on the Points *a* and *b* describe the Arches A *e* and B *f*, and on the Points *c* and *d* the Arches *e* *g*, and *f* *g*, and it will compleat another Gothic Arch.

P R O B. XXXIX. Fig. 39.

TO find the Angle of a regular Groin, or the Miter Bracket of a Cove.

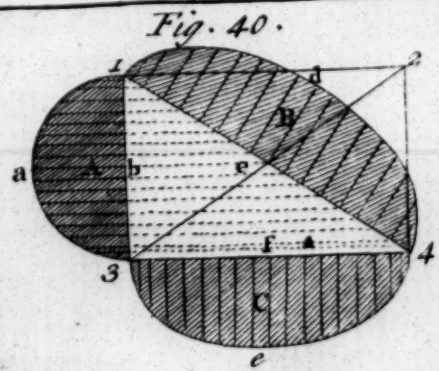
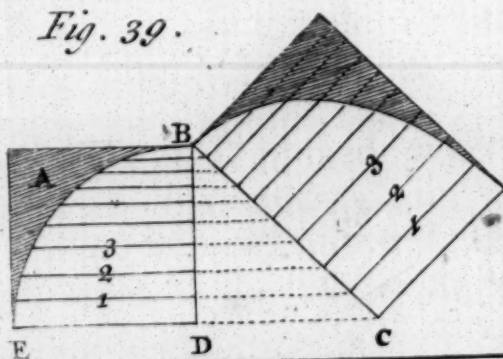
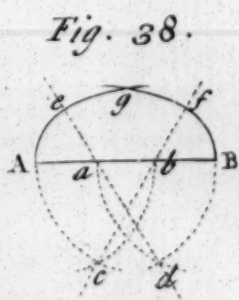
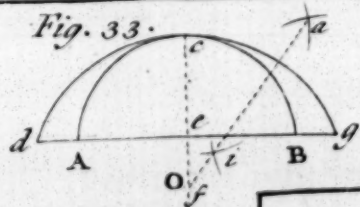
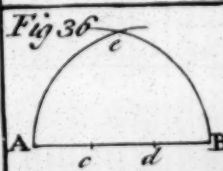
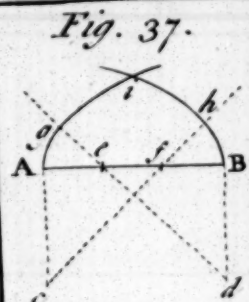
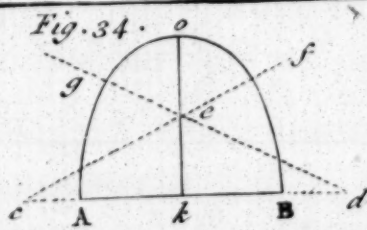
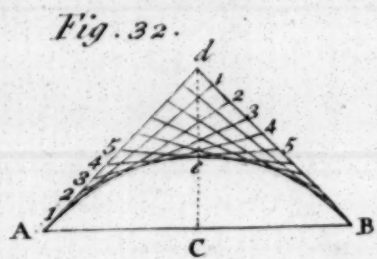
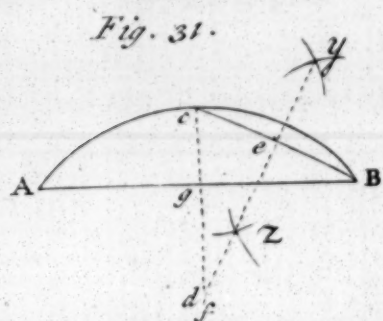
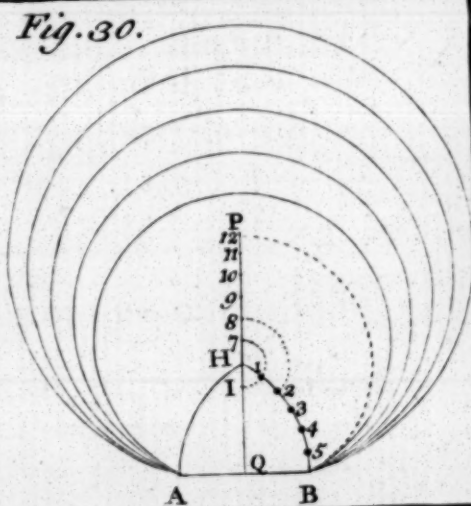
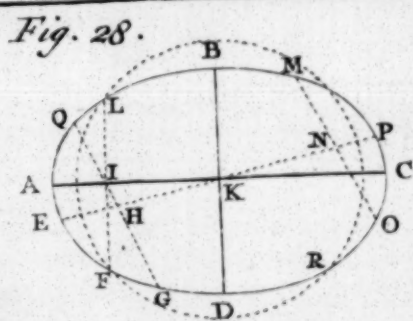
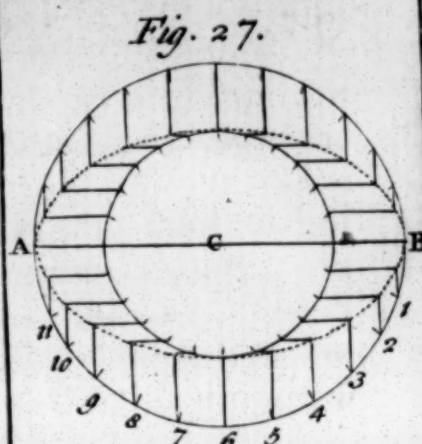
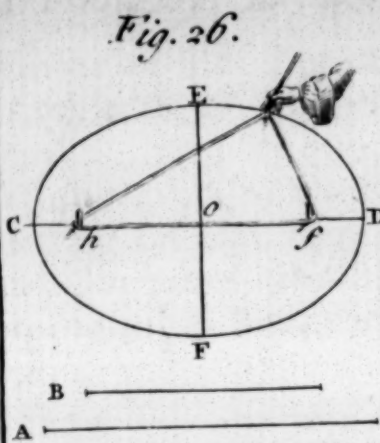
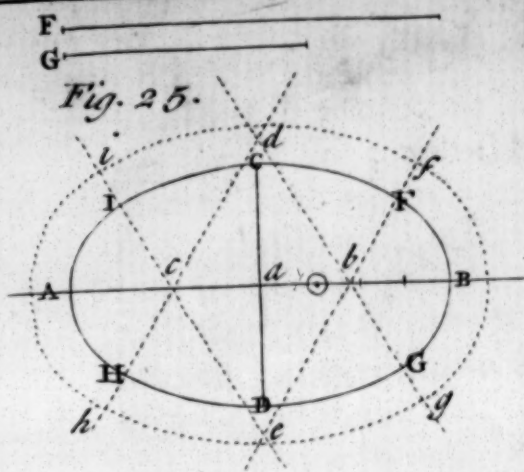
First, Describe the Form of the Cove intended, as E A B, then the Plan of the Angle, or Miter, as the Line B C. Divide the Projection, or Base-line, B D, into any Parts, equal, or unequal, any how, and raising Perpendiculars to touch the Moulding of the Cove; extend also those Lines to cut the Miter, or Angle, B C; from thence raise Perpendiculars, setting on them the Length of each correspondent Line, from the Base-line to the Cove, as 1, 2, 3, &c. This done, if you trace by Hand, or stick in Nails in the Points, and bend a thin Lath round them, and strike by its Edge, you will have formed the Mould for the Angle-Bracket required.

N. B. This Method will serve let the given Arch E B be what it will, Ellipsis, Ogee, &c. or let the Angle be a right Angle, or acute, or obtuse.

P R O B. XL. Fig. 40.

TO make the different Centers for regular or irregular Groins, so that their Miters shall be true.

First, Lay down the Plan of the Vault, Room, &c. as 1, 2, 3, 4, and draw the Diagonals, at the End from the Arch as here a Semicircle A; and as in the last Problem, so in this divide the Base-line





Base-line 1 3 into any Number of Parts, or any how, and continue the Lines to touch the Arch and the Diagonal 1 4, and from the Intersections of the Diagonal 1 4 raise Perpendiculars. Also from the said Intersections, raise Perpendiculars to the Side 3 4, then, as before in the last *Problem*, setting off each correspondent Length, you will form the Centers B and C required, the Lines, *a b, c d, e f*, and all the correspondent Perpendiculars being equal; then tracing, or sticking in Nails, and bending a Lath round the Points, you draw the Arches required.

C H A P. III. *Plate III.*

A Description of the most useful Instruments required in Drawing.

FIRST, a Drawing-Board A, which should be made of Wainscot, Mahogany, or some other hard Wood, about 19 Inches in Length, and 16 Inches in Width, or any Size that the Largeness of the Paper you use may require, with Pieces glewed on to each end to keep it from warping.

2. A Tee-square B should be made, with its Stem 8, 10, or 12 Inches long and an Inch and half wide, in the middle of which must be made a Mortise an Inch and half in Length, into which you must fix a Tongue or Blade, as thin as you well can, the thinner the better, taking care that it be fixed in at right Angles with the Stem, and as long as your Drawing Board.

3. You must have a Bevel C, whose Stem must be like that of the Square, only with this difference, the Stem must be mortised the whole Length within about $\frac{3}{4}$ of an Inch at each end: If the Blade be fastened in the middle thereof with a Screw, it will the better stand to any Bevel that you shall have occasion to set it to in Drawing.

4. A Parallel Ruler D is made with two Pieces of hard Wood or Brass, about 12 or 14 Inches long, and an Inch or more wide, having two Guides of Brass, rivetted on at each End so as to turn easy, and two Studs in the middle of each Piece for the better re-

D 2

moving

moving the Sides backwards or forwards. This you may have occasion for in drawing straight Lines, but it is exceedingly useful and expeditious in drawing Lines parallel to each other &c.

5. Three Pair of Compaffes, *viz.* one Pair of about six Inches in length, with the several Points for describing of Arches, with Ink, Black-Lead, &c. a second Pair of an Inch and half in length with the Pen-point only; to describe very small Circles, Arches, &c. and Lastly, a third Pair of 4 or $4\frac{1}{2}$ Inches in length, with their common Points only, to measure Intervals, draw occult Lines, Arches, &c.

6. A Hand-drawing Pen for delineating right Lines. A Plain Scale, containing divers Scales of equal Parts, by which Plans and Uprights of Buildings are drawn.

P R O B. XLI. Fig. 41.

TO raise a Perpendicular from a given Point, at the end of a right Line, equal in Heighth to a given right Line by the Help of the Tee-Square and Drawing-Board.

Let the Heighth of the perpendicular Line be equal to the Line E F.

First, Fasten on your Paper on the Drawing-board with Sealing-Wax at the four Corners, and then apply your Tee-Square to any Side of the Drawing-Board, as H I, and by its Edge draw a Line on the Paper at pleasure, as *a c*, and let the Point *d* be the given Point. Take between your Compaffes the Length of the given Line E F, the Heighth of the Perpendicular required, then applying your Tee-Square to the other Side of your Draught-Board G H, slide its Edge until it lies over the given Point *d*, set one Foot of the Compaffes in the Point *d*, and close to the Edge of the Square with the other Foot make a Prick, as at *e*. Draw the Line *d e* which is the Perpendicular required.

Here note, That if your Draught-Board is not truly square at its Angles, G H I K, and the Sides as truly strait as can be, the Work will be false.

CHAP. IV.

Measuring of Superficial PLAINS.

BY measuring of Plains, is meant the finding the Area, or Content of Superficial Figures, such as are Four-sided Figures, Triangles, Circles, &c. But because that the usual way of taking Dimensions is by Feet and Inches, I shall first shew you how to multiply Feet and Inches by Feet and Inches, before I come to particular Examples in Measuring.

EXAMPLE I.

Let it be required to multiply 11 Feet 4 Inches, by 7 Feet 5 Inches. Place the Numbers to be multiplied, in order, one under another, viz. Feet under Feet, Inches under Inches; making a Cross between the Feet and Inches, and drawing a Line under them as in the Margin.

Feet.		Inches.
11	X	4
7		5

The Product of 11 Feet by 7 Feet, is ---	77	— 0
The Product of 5 Inches by 11 Feet, is ---	4	— 7
The Product of 4 Inches by 7 Feet, is ---	2	— 4
The Product of 5 Inches by 4 Inches, is ---	1	— 8

The Total Product, or Content, is -----	84	— 0 — 8
---	----	---------

For the better understanding the foregoing Example, and all other Questions of the like Nature, observe the following Rules, viz.

1. That if Feet are multiplied by Feet the Product is Feet.
2. If Inches are multiplied into Feet, every 12 of the Product is 1 Foot; and any Number less than 12 is Inches.
3. If Inches are multiplied into Inches, every 12 of the Product is 1 Inch; and any Number less than 12 are Parts of an Inch.
4. If Parts of an Inch are multiplied by Feet, every 12 of the Product is 1 Inch, and any Number less than 12 are Parts of an Inch.
5. If Parts of an Inch are multiplied by Inches, every 12 of the Product is 1 Part, and any Number less than 12 are Seconds.

6. If

6. If Parts of an Inch are multiplied by Parts, every 12 of the Product is 1 Second; and any Number less than 12 are Thirds.

Note, For the ready finding the Twelves in any Product, it's best to make a Table of Twelves, and to get it perfectly by Heart, as follows:

2	} times 12 is	24	} times 12 is	84	} times 12 is	144
3		36		96		156
4		48		108		168
5		60		120		180
6		72		132		192

EXAMPLE II.

Let it be required to multiply 15 Feet 6 Inches and a Quarter, by 12 Feet 8 Inches and three Quarters.

And here note, that as a Foot contains 12 Inches Line-Measure, so an Inch is supposed (or accounted) to contain 12 Parts Line-Measure, and each Part to contain 12 Seconds, and each Second to contain 12 Thirds, and each Third to contain 12 Fourths, &c. And so the Proportion might be continued, if there were occasion, to Fifths, Sixths, &c.

Also observe, that each Place of Twelfths is distinguished by having a Letter put over it; thus, over the Feet write F, over Inches I, over Parts P, over Seconds S, over the Thirds, T, &c. as in this Example.

Set down your Dimensions, as in the Margin, F. I. P. S. T.
and read it thus, 15 Feet, 6 Inches, and 3 Parts
of twelve, which is the $\frac{1}{4}$ Inch; by 12 Feet, 8
Inches, and 9 Parts of 12, which is the $\frac{3}{4}$ of an
Inch. Multiply the 15 Feet by the 12, or else
take but one Figure at a time, saying twice 15
is 30, and once 15 is — — — —

The Product of 8 Inches by 15 Feet, is 120 }
Inches, which divided by 12 is 10

The Product of 6 Inches, by 12 Feet, is — — 6

The Product of 8 Inches by 6 Inches is 48 }
Inches, which divided by 12 is — — — — 4

Carried over 196 4 0 0 0
Brought

and Method of Building.

23

	F.	I.	P.	S.	T.
Brought over — — — —	196	4	0	0	0
The Product of 3 Parts by 12 Feet is 36, {	0	3	0	0	0
which divided by 12 is — — —					
The Product of 9 Parts by 15 Feet is 135, {	0	11	3	0	0
which divided by 12 is — — —					
The Product of 3 Parts by 8 Inches is 24, {	0	0	2	0	0
which divided by 12 is — — —					
The Product of 9 Parts by 6 Inches is 54, {	0	0	4	6	0
which divided by 12 is — — —					
The Product of 3 Parts by 9 Parts is 27, {	0	0	0	2	3
which divided by 12 is — — —					
The Total Product is — — — —	197	6	9	8	3

Note, That in casting up the Sum, you must carry 1 for every 12 to the next Denomination.

Thus you will see the Area, or Content, of 15 Feet, 6 Inches, and a Quarter (or 3 Parts of 12) in Length, multiplied by 12 Feet, 8 Inches, and three Quarters (or 9 Parts in 12) in Breadth is 197 Feet, 6 Inches, and 9 Parts of an Inch, accounted to have 12 Parts and 8 of one of those Parts; and 3 of one of those Seconds. But these Seconds and Thirds are not worth the setting down, or taking notice of, the Value of those Parts being so small.

Having now shewn you how to multiply Feet and Inches, by Feet and Inches, &c. I shall proceed to the measuring of Superficies and Solids. And first of Superficies.

P R O P. I. Plate. III.

TO measure a Square, and a Parallelogram, or long Square, as the Figures A and B, whose four Angles are all right.

R U L E.

Multiply one Side by the other, and the Product is the Area required.

P R O P. II.

TO find the Content of a Trapezium, two Sides whereof are parallel; as Fig. C.

R U L E.

Add the two parallel Sides together, whereof take half the Sum for the Length; multiply that by the Perpendicular $a e$, and the Product is the Content required.

P R O P. III.

TO measure any Triangle; as the Figures D and E.

R U L E.

Multiply the longest Side (which is usually called the Base) by half the Perpendicular let fall from the Angle opposite to the Base which is the pricked Line, and the Product is the Content required.

P R O P. IV.

TO find the Content of a Trapezium, as the Figure F.

R U L E.

Draw the Diagonal Line $a b$, which divide the Trapezium into two Triangles; next draw the two perpendicular Lines $e d$. Then take the half of the Sum of the two Perpendiculars when added together for your Breadth, and the Line $a b$ for your Length, and multiply them, and the Product is the Content.

P R O P. V.

TO find the Area, or Content, of a Pentagon, as the Figure G.

R U L E.

From the Center a draw the Lines $a b$ and $a c$, and let fall the Perpendicular $a d$; measure the Triangle $a b c$, as before is taught, and the Product multiplied by 5, is the Content of the Pentagon required. Here you must note, that what is here said of the Mensuration of a Regular Pentagon, may be also understood of the Mensuration of a Hexagon, Heptagon, Octagon, &c.

P R O P.

PROP. VI.

TO find the Content of any unequal sided Figure, as the Fig. H.

R U L E.

Divide it into Triangles, marking each with an Alphabetical Letter or a Figure. Then beginning with the first Triangle, as that marked *a*, find its Content and place it down, as in the Table, and in like manner go through with the whole; then, lastly, by adding all the several Triangles together, you will have the whole Content of the unequal sided Figure as required.

<i>a</i>	3	2	3
<i>b</i>	4	6	0
<i>c</i>	5	3	6
<i>d</i>	3	6	0
	16	5	9

PROP. VII.

THE Diameter of a Circle being given, to find the Circumference thereof Arithmetically, as Fig. I.

R U L E.

As 7 is to 22, or as 113 to 355, so is the Diameter to the Circumference.

E X A M P L E.

Suppose the Diameter given be 12 Feet, as Fig. I, it is required to find the Circumference thereof.

Multiply the Diameter (being 12) by 22, the Product is 264, which divided by 7 brings 37 Feet and $\frac{5}{7}$ of a Foot for the Circumference. Or multiply the Diameter 12 by 355, the Product is 4260, which divide by 113 brings 37 Feet and $\frac{72}{113}$ of a Foot for the Circumference; this last Way is the truest, the other makes the Circumference a small matter too much.

E

If

If the Circumference be given, and the Diameter be required, it appears by this Rule, the Circumference $37 \frac{79}{113}$ being multiplied by 113, and the Product divided by 355, gives 12 the Diameter.

P R O P. VIII. Fig. I.

THE Diameter and Circumference of a Circle being given, to find the Area, or superficial Content thereof, Arithmetically, divers ways.

R U L E 1.

Multiply half the Diameter by half the Circumference, it shews the Content of any Circle.

R U L E 2.

Or multiply the whole Circumference by the Semidiameter *a c*, and take half the Product.

R U L E 3.

Or multiply the Square of the Diameter by 11, and divide the Product by 14, the Quotient is the Content.

P R O P. IX. Fig. I.

HAVING only the Diameter of a Circle given, to find the Content.

R U L E.

Say, As 7 is to 22, so is the Square of the Semidiameter to the Content of the Circle.

E X A M P L E.

Let the Diameter given be *a b*, as Fig. I.

Multiply the Square of the Semidiameter *a c*, which is 36, by 22, and the Product is 792, which divided by 7, gives $113 \frac{1}{7}$ for the Content required.

P R O P.

P R O P. X. Fig. I.

HAVING the Circumference given, to find the Content.

R U L E.

As 88 (which is 4 times 22) is to 7, so is the square of the Circumference to the Content.

Multiply the Square of the Circumference by 7, and divide the Product by 88, and you have the Content required.

P R O P. XI. Fig. I.

T H E Content of a Circle being given, to find the Diameter.

R U L E.

As 22 is to 28, so is the Content to the Square of the Diameter.

Multiply the Content given by 28, and divide the Product by 22. The square Root of that Quotient is the Diameter sought. Or thus, and more exactly, by *Metius's* Proportion; As 355 is to 452, so is the Content given to the Square of the Diameter.

P R O P. XII. Fig. I.

T H E Content of a Circle being given, to find the Circumference.

R U L E.

As 7 is to 88, so is the Content to the Square of the Circumference.

Multiply the Content given by 88, and divide the Product by 7, and the Square Root of that Quotient is the Circumference required.

P R O P. XIII. Fig. I.

T H E Content of a Circle being given, to find the Side of a Square, the Content of which Square shall be equal to the Content of the Circle.

R U L E.

Extract the Square Root of the given Content, and that Root is the Side of a Square required.

P R O P. XIV. Fig. 1.

THE Diameter of a Circle being given, to find the Side of a Square, the Area of which Square shall be equal to the Area of the Circle of the given Diameter.

R U L E.

As 7 is to 22, so is the Square of the Semidiameter to the Content required. But this Proportion of *Archimedes* is not so true as that delivered by *Metius*, and therefore I would advise the Reader always to make use of his Proportion, *viz.* As 113 is to 355, so is the Square of the Semidiameter to the Content required.

Multiply the Square of the Semidiameter by 355, and divide the Product by 113, it gives the Side of the Square required. This Content is less than the Content produced from *Archimedes's* Proportion considerably, but more exact; and the greater the Diameter is, the more the Difference will be.

Or thus, As 452 (which is 4 times 113) is to 355, so is the Square of the Diameter to the Content required.

P R O P. XV.

THE Diameter of a Circle being given, to find the Side of a Square which may be inscribed within that Circle.

R U L E.

Square the Diameter, and the Root of half the Product is the Side of the Square required.

P R O P.

P R O P. XVI.

THE Diameter and Arch-Line of a Semicircle being given, to find the Area thereof.

Let $a b c$, in Fig K, be a Semicircle given, whose Diameter is $d c$, and the Arch-Line $a b c$, it is required to find the Area of that Semicircle.

R U L E.

Multiply half the Arch-Line by the Semidiameter, the Product will be the Content required.

P R O P. XVII. Fig. K.

THE Semidiameter and Arch-Line of a Sector of a Circle being given, to find the Area of the Sector.

Let $b c d$ be the Sector of a Circle, whose Semidiameter is $d c$, or $d b$, and the Arch-Line $b c$; and let it be required to find the Area.

R U L E.

Multiply the Semidiameter by half the Arch-Line $b c$, the Product is the Area required.

P R O P. XVIII. Fig. K.

ANY Segment, or Part of a Circle being given, to find the Content.

Let $a c b e$, be the Segment of a Circle, the Content whereof is required.

R U L E.

First, Find out the Center of the Arch-Line $a c b$ (by the 14th Probl. of Geometry), then draw the Lines $d a$ and $d b$, and cast up the whole Figures $a c b d$, as in the last Proposition; then find the superficial Content of the Triangle $a d b$, and deduct the same out of the whole Content, the Remainder is the Content of the given Segment as required.

By

By this Rule all manner of Segments, or Parts of a Circle, whether greater or lesser than a Semicircle, may be easily measured.

P R O P. XIX. Fig. K.

TO find the Diameter of a Circle, by having one part of the Diameter given, also having the Length of the Chord crossing the Diameter in the given Part.

Let ce be the Part of the Diameter given, also let ab be the given Chord which cuts off the given Part of the Diameter; it is required to find the whole Diameter arithmetically.

R U L E.

Square one half of the Chord-Line ab , and divide the Product by the given Part of the Diameter ce , the Quotient being added to the said given Part, is the Length of the Diameter required.

P R O P. XX.

ANY Segment of a Circle being given, whose Chord-Line doth not exceed the Chord of the Quadrant of the same Circle; to find the Content without finding the Diameter, and without describing any more of the Circumference. And very near the Truth in small Segments.

Let the Segment given be Fig. L, whose Chord-Line is ai , and the Part of the Diameter cut off by the Chord-Line uo , the Content of this Segment aoi is required.

R U L E.

Take the whole Length of the Chord ai , and $\frac{2}{3}$ of the Length of the Line uo , to which $\frac{2}{3}$ add $\frac{7}{12}$; then multiply those two Lengths, and the Product gives you the Content.

Note, The two little Segments, ao , and oi , are measured by the same Rule.

Prop. XXI. Fig. M.

TO find the superficial Content of an Oval.

R U L E.

Multiply one Diameter by the other, and extract the Square Root of their Product. That Root so extracted shall be equal to the Diameter of a Circle, whose superficial Content shall be equal to the Oval given, which may be found by *Prop. 8.* for a Circle.

Prop. XXII.

TO find the superficial Content of a Cylinder.

Note, That a Cylinder is a solid Body, such as is used in Gardens for the rolling of Walks.

R U L E.

As 7 to 22, or as 113 to 355, so is the Diameter and Length of the Side multiplied one by the other, to the superficial Content of the Out-side of the Cylinder, the two Bases, or Ends being excluded.

E X A M P L E.

Let *Fig. N,* be a Cylinder whose superficial Content is required. Multiply the Diameter by the Length, and multiply that Product by 355, and divide the last Product by 113, the Quotient shews the superficial Content of the Cylinder required. If you work by the Proportion of 7 to 22, the Content will be a small matter more than the former.

If you have the Circumference and Length of a Cylinder given, and the Content be required,

Multiply the Circumference by the Length, and the Product is the superficial Content.

If it is required to have the superficial Content of the two Bases, or Ends of the Cylinder, you must find the Content of them, as
is

is shewn in *Prop.* 8. and when those are found, add their Sums to the former Content, and you will have the superficial Content of the Cylinder, with the two Bases or Ends included.

P R O P. XXIII.

To find the superficial Content of a Cone.

A Cone is a Body which hath a Circle for its Base, from whence it diminisheth equally (like a round Spire of a Steeple) 'till it end in a Point.

Let *Fig.* O, be a Cone, the Circumference of whose Base is 28 Feet, and the Length of the Side 12 Feet, the Content of which is required.

R U L E.

If you require the Content of the whole Cone, that is to say, the Content of the Base, as well as the Content of the Outside; then multiply the whole Side by half the Circumference of the Base; and to the Product add the Content of the Plain of the Base.

E X A M P L E.

The whole Circumference is 28 Feet, the half thereof is 14 Feet, which being multiplied by the Length 12 Feet, produces 168 Feet for the Content of the Outside, without the Bases; then for the Content of the Circle, whose Circumference is 28, (by *Prop.* 10.) find the Content thereof, and add it to the former Content, and the Product is the superficial Content of the Cone including its Base.

E X A M P L E.

The Content of the Cone without its Base is	168
The Content of the Base is	63 $\frac{4}{8}$
Whole Content	231 $\frac{4}{8}$

P R O P.

P R O P. XXIV.

TO find the superficial Content of a Pyramid.

As a Cone hath a round Base, and diminisheth equally 'till it end in a Point; so a Pyramid hath an angular Base of 3, 4, 5, 6, or any other Number of Sides, and diminisheth to a Point at the Top.

Let *Fig. P*, be a Pyramid whose Base is square, and whose superficial Content is required.

R U L E.

Add all the four Sides of the Base together, and take half the Sum; then multiply that Half by the Side or Length, for the Content required.

Note, That if the Base be Triangular, or in the Form of a Pentagon, &c. you must add all the Sides together, and take half thereof, and multiply that Half into the Length for the Content.

Then if you would add the Content of the Base to the Content of the Outside, you must find the Content thereof, as is before taught, *Prop. 5*, for any of the like formed Figure, and add it to the Content of the Outside.

P R O P. XXV. Fig. Q.

TO find the superficial Content of a Globe or Sphere.

R U L E.

Multiply the Diameter by the Circumference, and the Product will be the superficial Content of the round Body or Globe.

E X A M P L E.

Let the Diameter be 14 Feet, the Circumference will be 44 Feet, which being multiplied one by the other, the Product is 616 Feet, for the Content of the Superficies of the Globe.

Or find the Content of a Circle that hath the same Diameter as the Globe, and multiply that Content by 4, and the Product is the superficial Content required.

P R O P. XXVI.

TO find the superficial Content of a Segment of a Globe or Sphere.

The Superficies of any Segment of a Globe, is the Superficies of the remaining Portion, as the Portion of the Axis or Diameter cut off is to the remaining Portion of the same.

E X A M P L E.

Let *Fig. Q* be a Segment of a Globe given *egf*, whose Part of the Diameter is 5 Feet; and the whole Diameter 14 Feet; and let the superficial Content of the circular Part be required.

Say by the *Rule of Three*; If 14 gives 616, what will 5 give? Multiply 616 by 5, the Product is 3080; which divided by 14, gives 220 Feet for the superficial Content of the Segment, or Part of the Globe.

C H A P. V.

Of Measuring SOLIDS.

BY Measuring of Solids, is meant the measuring of Stone, Timber, Digging of Earth, and all Solid Bodies whatsoever.

As a Superficies consists of Length and Breadth, so a Solid Body consists of Length, Breadth, and Depth (or Thickness).

And as in *Superficies* you only multiply the Length by the Breadth, for the Content; so in Measuring of Solids you must first multiply the Breadth by the Length, for the gaining the superficial Content; and then multiply that Product by the *Depth* of the Solid Body, and the Product is the Solid Content.

P R O P.

P R O P. I. Fig. 1. Plate III.

To find the solid Content of a Cube; as in Fig. 1. being a Cube 12 Inches in Length, 12 Inches in Breadth, and 12 Inches in Depth, whose solid Content is required.

First, multiply 12 Inches the Length, by 12 Inches the Breadth, and the Product is 144 Inches for the superficial Content; this multiplied by 12 Inches, the Depth, produces 1728 Inches for the Solid Content of that Cube, which is one Solid Foot.

E X A M P L E.

	Inches.
The Length	12
The Breadth	12
	24
	12
The Superficial Content is	144
Which multiplied by the Depth	12
	288
	144
The Solid Content required	1728

P R O P. II. Fig. 2.

TO measure the Solid Content of a long Cube, or Paralleloepidon, as Fig. 2.

E X A M P L E.

Suppose the Paralleloepidon given, be 6 Feet long, 10 Inches wide, and 7 Inches in Depth, what is the Content?

Multiply 6 Feet the Length by 10 Inches the Breadth, the Product is 60. Secondly, Multiply this Product by 7 Inches the Depth, which gives 420. Thirdly, Multiply this last Product by 12, and divide the Product thereof by 1728 (the Cubical Inches in a Solid Foot), and it gives 2 Feet and $\frac{1584}{1728}$ for the Content. See the Work.

The Length 6 Feet
The Breadth 10 Inches

—
60

The Depth 7 Inches

—
420

12 Inches

—
840

420

The Inches in a solid Foot 1728) 5040 (2 Feet
3456

The Inches in a Quarter Foot 432) 1584 (3 Quarters 288 Inches
1296

Remainder 288 Inches.

P R O P. III. Fig. 3.

TO measure the solid Content of a Prism, or Triangular Solid.

R U L E.

First, Find the superficial Content of one End, (which is a Triangle, as is taught before in Superficies) then multiply that Content by the Length, and the Product is the Solidity required.

P R O P. IV. Fig. 4.

TO measure the solid Content of a strait Piece of Timber or Stone, terminated at both Ends with two equal Pentagons.

R U L E.

First, Find the superficial Content of the Pentagon, as before is taught in Superficies, and multiply that Content by the Length, and the Product is the solid Content required.

P R O P.

P R O P. V. Fig. 5.

TO measure the Solid Content of a strait Piece of Timber, or Stone, that is squared, being bigger at one end than the other.

R U L E.

First, Find the Content of the biggest End. Secondly, Find the Content of the lesser End. Thirdly, Multiply one Content by the other. Fourthly, From that Product extract the Square Root. Fifthly, Add this square Root, and the Content of both Ends, into one Sum. Sixthly, Multiply this Sum by one third Part of the Length, and the Product is the Solid Content required.

P R O P. VI.

TO measure the solid Content of a Pyramid, whose Base is an equilateral Triangle, or a Square, or in the Form of a Pentagon, as Fig. 6. also to find the Content of a Cone.

R U L E.

First, Find the Superficial Content of their Bases (as is taught before, for any of the like formed Figures in *Superficies*) and Multiply that Content by one third Part of the Heighth, and the Product is the Content required.

P R O P. VII.

TO find the solid Content of a Cylinder, as Fig. N.

By a Cylinder is meant such a *like* Solid as is used in Gardens for the rolling of Walks. To measure which Solid.

First, Find the Content of the Base (as before taught), which Content being multiplied by the Length of the Cylinder, the Product is the Content required.

P R O P. VIII.

TO measure the Segment of a Cone, which may well be represented by a Tree that grows taper or diminishing, as Fig. 7.

R U L E.

R U L E.

For finding the Content of such a formed Figure, you must have recourse to the Rule delivered in the Fifth Proposition hereof: For the same Rule that serves for taper'd square Timber, serves also for round Timber, or Bodies whose Bases or Circles at the Ends are unequal.

P R O P. IX.

LET Fig. Q be a Sphere, or Globe, whose Axis a b is 12 Feet: What is the solid Content thereof?

R U L E.

As 21 is to 11, or as 42 to 22, so is the Cube of the Diameter or Axis of the solid Content required.

E X A M P L E.

	Feet.
The Axis is 12, and the Square of it is —	144
Which multiply by the Axis —	12
The Cube of the Axis is —	1728

Then say, by the Rule of Three, If 21 give 11, what will (the Cube of the Diameter) 1728 give?

Place the Numbers in order thus — 21 11 1728

Multiply the third Number by the second Number 11, and divide the Product by the first Number 21, and the Quotient is 905 Feet and $\frac{3}{21}$ of a Foot, the Content required.

	11
	1728
	1728
	Feet.
21)19008(905 $\frac{3}{21}$	
	189
	108
	105
	3

P R O P.

PROP. X. Fig. Q.

THE solid Content of a Globe or Sphere being given, to find the Diameter or Axis.

RULE.

As 22 is to 42, so is the Solid Content given to the Cube of the Diameter, whose Length is required.

EXAMPLE.

Multiply the given Content by 42, and divide the Product by 22, the Cube Root of the Quotient is the Diameter sought.

PROP. XI.

SUPPOSE in Fig. Q egf were the Segment of a Sphere, what is the solid Content thereof?

RULE.

First, Increase the Altitude of the other Segment not given by half the Axis.

Then say, by the Rule of Three, as the Altitude of the other Segment not given, is to the Height of the given Segment g 5; so is the Altitude of the other Segment 5 b , to a fourth Proportional.

Secondly, Square half the Chord Line ef , and multiply the Square of that half Chord by the fourth Proportional found by the first Work.

Then say, by the Rule of Three, As 21 is to 22; so is the Product of the Square of half the Chord of the given Segment, multiplied by the fourth Proportional (found as above) to the solid Content of the given Segment egf .

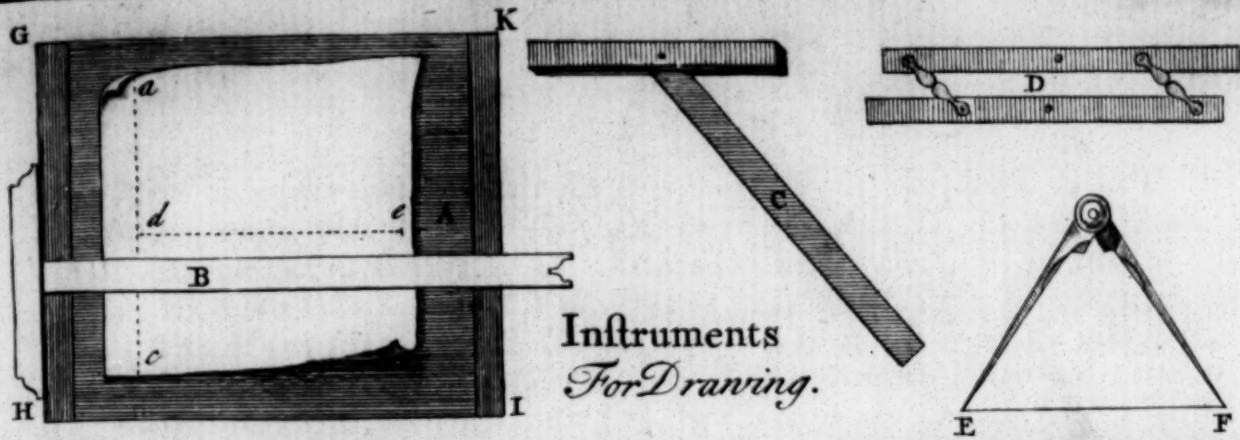
Having gone through the Mensuration of Superficies and Solids, I shall now return to the Building, and consider of the several Measures that Workmen use in taking their Dimensions. But, first, I shall give you a Table of *English* Measures used in Land and Buildings.

A TABLE

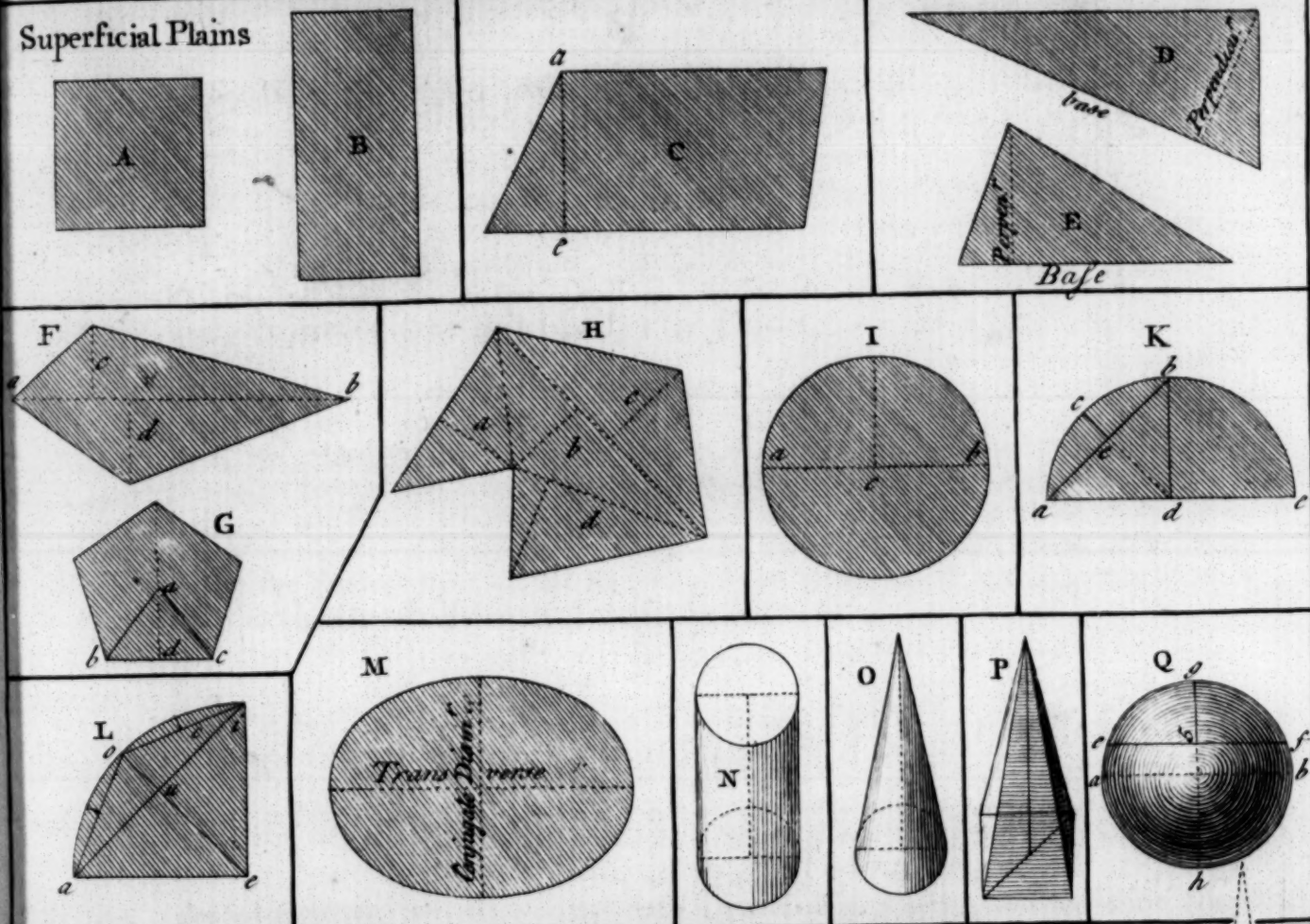
A TABLE of English Measures used in Lands and Buildings.

1. **A** Geometrical Pace is 5 Feet in Length.
2. A Geometrical Perch is 10 Feet in Length.
3. A Statute Pole or Perch is $16\frac{1}{2}$ Feet in Length.
4. A square Statute Pole or Perch is $272\frac{1}{4}$ square Feet.
5. A Woodland Pole or Perch is 18 Feet in Length.
6. A Square Woodland Pole is 234 square Feet.
7. A Forest Pole or Perch is 21 Feet in Length.
8. Four Statute Perches is one Chain's Length.
9. Ten Chain's Length is a Furlong, or Acre's Length.
10. Four Chain's Length is an Acre's Breadth.
11. Forty square Perches is a Rood, or a Quarter of an Acre.
12. Four Roods, or 160 Perches, is one Acre.
13. A Hide of Land is 100 Acres.
14. A Square Foot is 144 square Inches.
15. A cubical Foot is 1728 cubical Inches.
16. A square Yard is 9 square Feet.
17. A cubical Yard is 27 cubical Feet.
18. A Square is 100 square Feet.
19. A Load of rough Timber is 40 Feet.
20. A Load of squared Timber is 50 Feet.
21. A Load of 1 Inch Plank is 600 square Feet.
22. A Load of $1\frac{1}{2}$ Inch Plank is 400 square Feet.
23. A Load of 2 Inch Plank is 300 square Feet.
24. A Load of $2\frac{1}{2}$ Inch Plank is 240 square Feet.
25. A Load of 3 Inch Plank is 200 square Feet.
26. A Load of $3\frac{1}{2}$ Inch Plank is 170 square Feet.
27. A Load of 4 Inch Plank is 150 square Feet.
28. A Load of Statute Bricks is 500.
29. A Load of Plain Tiles is 1000.
30. A Load of Lime is 32 Bushels.
31. A Load of Sand is 36 Bushels.
32. A Hundred of Lime is 35 Bushels.
33. A Hundred of Deals is 120.
34. A Hundred of Nails is 120.
35. A Thousand of Nails is 1200.
36. A Ton of Iron is 2240 Pound Weight.
37. A Fodder of Lead is 19 Hundred $\frac{1}{4}$, or 2184 Pound.
38. A Hundred of Lead is 112 Pound Weight.
39. A Table of Glafs is 5 Feet, and 45 Tables is a Cafe, but of NEW-CASTLE, and NORMANDY Glafs, 25 Tables is a Cafe.

Instruments
For Drawing.



Superficial Plains



SOLIDS
Fig. 1.

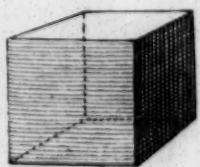


Fig. 2.

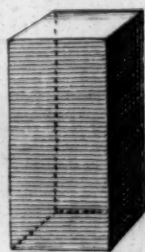


Fig. 3.



Fig. 4.

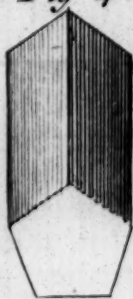


Fig. 5.

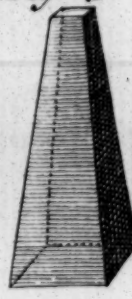
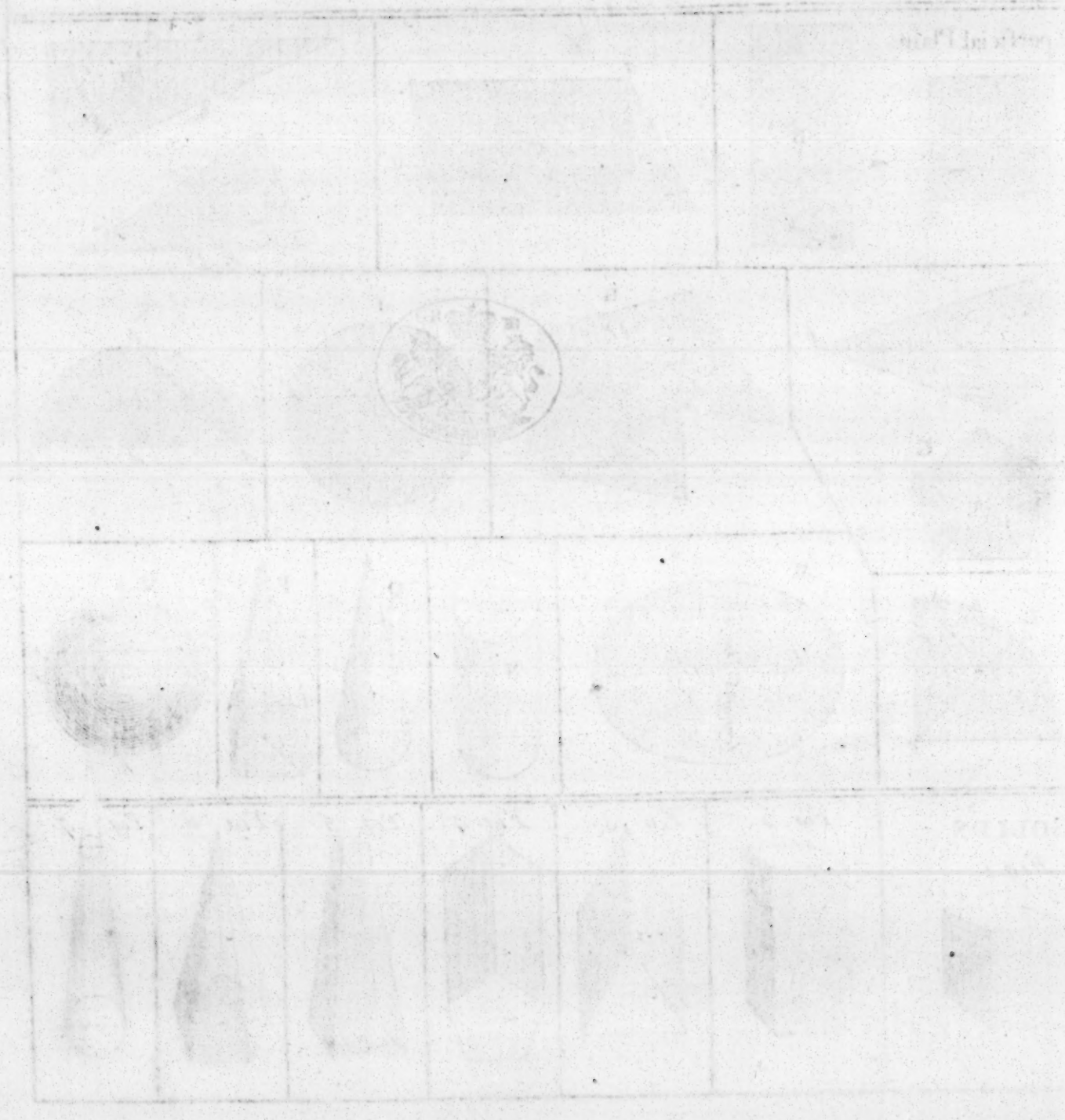
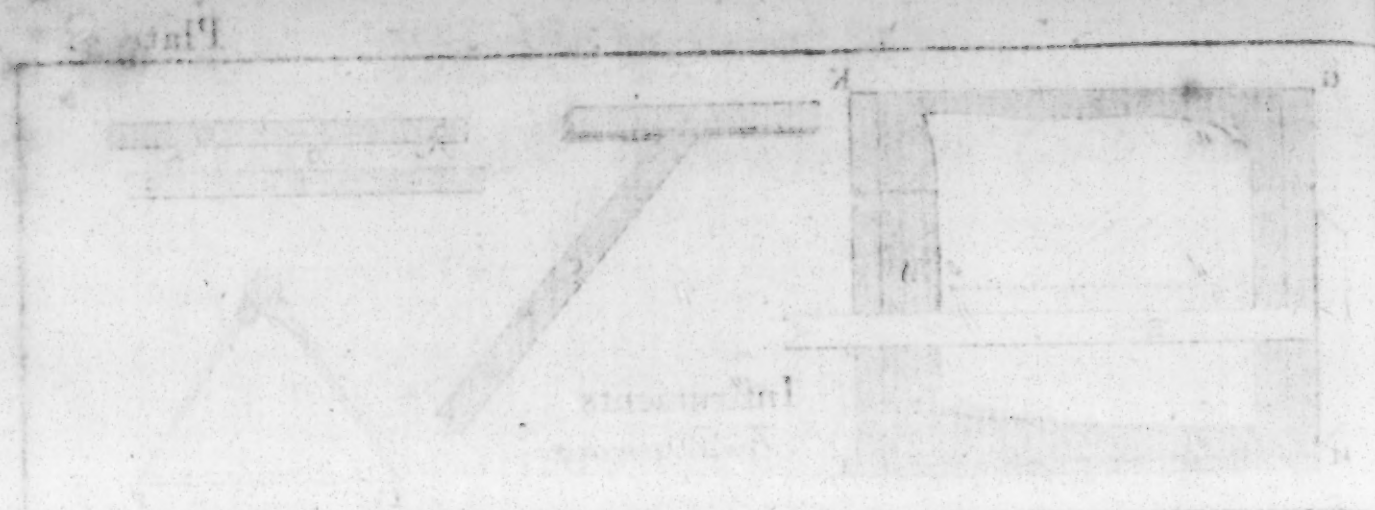


Fig. 6.



Fig. 7.





C H A P. VI.

The CONTENTS.

How to measure and estimate the Work of the several Artificers concerned in Buildings, viz. Sect. I. Of CARPENTERS. Sect. II. JOINERS. Sect. III. BRICKLAYERS. Sect. IV. PLAISTERERS. Sect. V. MASONS. Sect. VI. GLAZIERS. Sect. VII. PAINTERS. Sect. VIII. PLUMBERS. Sect. IX. PAVIQUERS. Sect. X. SMITHS. To which is added an Account of the Prices of the said Works, and their respective Materials; and of the Quantity of Materials required to the Performance of each particular Sort of Work.

SECT. I. Of CARPENTERS Work.

See Hoppus's *Practical Measurer*, Fourth Edition, which contains many new, useful, and curious Observations concerning the Measuring of Rough and Hewen TIMBER. Printed for E. Wicksteed in Warwick-Court, Warwick-Lane, LONDON.

THE Work done by Carpenters, are chiefly Framing of Houses, Barns, Stables, Floors, Partitions, Roofs, &c. making of Doors, Windows, Stair-Cases, Cornishes, Frontispieces, Modillion-Cornishes, Cove-Eaves, and boarded Floors of all Sorts, Weather-boarding, and boarded and cleft Pale-Fencing.

1. To measure the Body of a Timber Building, viz. of a House, Barn, or Stable, &c.

This Sort of Work is done by the Square, containing 100 superficial Feet. In measuring the outside Carcase of a House, &c. take the Length of one Side, and one End, and add them together, and their Sum, multiplied into the Height taken from the under Side of the Sill, to the upper Side of the Rafting, gives the Content of one Side and one End; which being doubled, is the Content of the whole Body, or outside Carcase of the Building, in Feet. To bring the Content found into Squares, divide the Product by 100, the superficial Feet contained in one Square of Framing, and the Quotient is the Answer required: Thus, for

E X A M P L E.

If a Timber Building were 50 Feet long and 25 Feet wide, and the Height to the Rafting 20 Feet, how many Square of Framing is contained therein?

Length	50 00	OPERATION.
Breadth	25 00	Multiply 75 Feet the Length of one Side and
Added together, is	75 00	End, by 20 Feet the Height, the Product is
Multiplied by the Height	20 00	1500 Feet; to which add the same Number
	1500 00	or multiply it by 2, the Product is 3000
	1500 00	Feet, or 30 Square, the Content required.
	3000 00	And to save the Trouble of dividing the Pro-
Double for both Sides	3000 00	duct by 100, to bring it into Squares, cut
		off 2 Places of Figures thus, 30,00, and you
		have for Answer 30 Squares, and so of any
		other.

2. Of Roofs. This Sort of Work is also done by the Square of 10 Feet squared, or 100 superficial Feet. The Particulars to be observed in measuring of which, are, that let the Roof be true Pitch or not, and the Ends thereof Gable or Hip'd, they may

may be either of them measured by this general Rule, *viz.* Multiply the Length of the Building by the Length of the Rafter, and twice that Product is the Content in Feet.

E X A M P L E.

In the aforesaid Building of 50 Feet long, and 25 Feet wide, admit the Roof to be true Pitch, *viz.* the Length of the Rafter equal to $\frac{3}{4}$ of the Breadth of the Building, or 18 Feet 9 Inches.

The Length of Building 50 0
The Length of Rafter 18 9

O P E R A T I O N.

400 0
50 0
900 0
37 6
937 6
2

Multiply 50 Feet the Length of the Building, by 18 Feet 9 Inches, the Length of the Rafter; and the Product is 937 Feet 6 Inches the Contents of one Side; which doubled or multiplied by 2, the Product is 1875 Feet, or 18 Square $\frac{3}{4}$, which is the Contents of the whole Roof.

Contents of the whole 18,75

3. To measure the *Gable End* of a House, &c. observe this Rule, multiply the Perpendicular by Half the Base or Breadth of the Building, or the whole Base by Half the Perpendicular, and the Product is the Content.

E X A M P L E.

In the Gable End of the above-mentioned Roof, the Perpendicular is 14 Feet, and the Base 25 Feet, what is the Content?

Half the Base 12 6
Perpendicular 14 0

O P E R A T I O N.

168 0
7 0

Multiply 12 Feet 6 Inches Half the Base, by 14 Feet the whole Perpendicular, and the Product is 175 Feet, which is 1 Square and $\frac{3}{4}$.

Contents 1,75 0

Note, That the same Rule will hold good for measuring the *Hip End* of a Roof, by observing that the Length of the Rafter, in this Case, is the Perpendicular.

N. B. *The Rafters, Feet, and Eaves-board, are measured per Foot running.*

4. Of *Floors.* In naked Flooring, you are to allow 7 or 10 Inches for the Length of the Joist laid in the Wall.

In boarded Flooring, you must take your Dimensions to the very extreme Parts; out of which, Deductions must be made for Stair-Cases, Chimnies, &c.

5. *Weather-boarding* is done by the Yard Square, and sometimes by the Square, containing 100 superficial Feet.

6. *Framed-partitions* are measured by the Square, containing 100 superficial Feet.

7. *Boarded-partitions* are also measured by the Square, out of which, you must deduct

deduct the Doors and Windows contained therein, except they are agreed to be included.

8. *Windows* are generally made and valued by the Foot, superficial Measure, and sometimes by the Window. When they are measured, the Dimensions must be taken in Feet and Inches, from the under Side of the Sill, to the upper Side of the Cap-piece for the Heighth; and for the Breadth, from Outside to Outside of the Jaumbs; and the Product of the Multiplication, is the superficial Content.

9. *Stair-cases* are measured by the Foot superficial, and the Dimensions are taken with a String girt over the Rafter and Tread, and that Length or Girt, being multiplied by the Length of the Step, the Product is the superficial Content.

10. *Door-cases* are measured by the Foot superficial, and the Dimensions must be taken with a String girt round the Architrave and Inside of the Jaumbs, for the Breadth; and for the Length, add the Length of the two Jaumbs, to the Length of the Cap-piece, taking the Breadth of the Opening for the Length thereof, and the Product of their Multiplication, is the superficial Content.

11. *Framed doors* are measured by the Yard square, containing nine square Feet, and if of whole Deal, they are allowed Work and half Work; or double Work, if of two Inch-stuff, in Consideration of their being wrought on both Sides.

12. Note. *Window-shutters* are measured and valued in the same Manner as *Doors*.

13. *Modillion Cornishes, Coves, &c.* are generally measured and valued by the Foot superficial. Their Dimensions, in respect to the Breadth or Heighth, is taken with a String girt into the Mouldings, and that Dimensions, multiplied by the Length, is the superficial Content.

14. *Fencing* of all Sorts is done by the Rod, lineal Measure, containing sixteen Feet and a Half.

15. For the Prices of rough Timber used in Building and not framed (Sawing included) in *London* at 2 s. 8 d. in Oak, and 2 s. in Fir, per Foot Cube.

16. *Ditto*, framed in Roofs, naked Flooring, Partitions, &c. at 3 s. 3 d. in Oak, and 2 s. 2 d. in Fir per Foot Cube.

17. *Ditto*, in Door-cases and Window-frames plained and framed, at 3 s. 10 d. in Oak, and 2 s. 8 d. in Fir, per Foot Cube.

18. To Work only for framing naked Flooring with binding Joist in *London*, 9 s. per Square, in Oak 8 s. per Square in Fir, or 100 Feet superficial Measure.

19. *Ditto*, with Girders and Joists in *London*, 8 s. per Square in Oak, and 7 s. per Square in Fir.

20. To work only of framing single Roofs, Plates included, 8 s. per Square in Oak, 6 s. per Square in Fir, at *London*.

21. *Ditto*, framed with Purloins and Collar-beams, at *London*, 12 s. per Square in Oak, and 10 s. per Square in Fir.

22. To *extra* Work in Trussing of Beams in *London*, 6 d. per Foot in Oak, 4 d. per Foot in Fir, running Measure.

23. *Ashlaring* or Ceiling Floors at *London* with Stuff 4 by three, at 16 s. per Square.

24. For Framing the outside Carcase and Floors of a House, Hewing, Sawing, and Workmanship, at 10 s. per Square in *Ipswich*.

25. *Ditto*, Workmanship only, 4 s. 6 d. per Square.

26. To Framed Partitions, Hewing, Sawing, and Workmanship in *Ipswich*, from 7 s. to 8 s. per Square.

27. *Ditto*, Workmanship only, from 3 s. 6 d. to 4 s. per Square.

28. To framed Roofs, Hewing, Sawing, and Workmanship, according to the Scantling of the Timbers, from 8 s. to 10 s. per Square in *Ipswich*.
29. *Ditto*, Workmanship only, from 4 s. 6 d. to 5 s. per Square.
30. For Framing the outside Carcase of a House with old Timber made streight on both Sides, at *Ipswich*, Workmanship only, at 6 s. per Square.
31. Oak-Timber for building, cut to any Scantling, at *Ipswich*, 2 s. 6 d. per Foot Cube.
32. To framing of Barns or Stables, Hewing, Sawing, and Workmanship, according to the Roughness and Scantling of the Timber, at *Ipswich*, from 8 s. to 9 s. per Square.
33. *Ditto*, Workmanship only, from 3 s. 6 d. to 4 s. per Square.
- Note. See the Table of Scantlings of Timber at the End of this Chapter.
34. To lay Barn-Floors of Oak-Joists, and 2 Inch Oak-Plank, at *Ipswich*, 3 l. 10 s. per Square.
35. *Ditto*, Workmanship only, 6 s. per Square.
36. *Ditto*, Hewing and Sawing included, according to the Roughness of the Timber, from 12 s. to 14 s. per Square.
37. To lay Barn-Floors with Oak-joists, and 2 Inch double Deal, at *Ipswich*, 2 l. 10 s. per Square.
38. *Ditto*, Workmanship only, 5 s. per Square.
39. To lay Barn Floors with Oak-joists, and 3 Inch Deal, at *Ipswich*, 2 l. 18 s. per Square.
40. *Ditto*, Workmanship only, 5 s. 6 d. per Square.
41. Rasters Feet and Eves-boards, at *London* and *Ipswich*, 4 d. per Foot, running Measure.
42. Guttering and Bearers of Oak, in *London* 8 d. per Foot superficial.
43. *Ditto*, of Fir, 6 d. per Foot.
44. Streight Mouldings of Deal, in *London*, at 12 d. per Foot superficial.
45. Plain outside Cornishes out of whole Deal, at *London* and *Ipswich* at 9 s. per Foot superficial.
46. *Ditto*, with plain Modillion-Cornishes, in *London* and *Ipswich*, at 18 d. per Foot square.
47. *Ditto*, Workmanship, 10 d. per Foot square.
48. Dentiles Cornishes, at 18 d. per Foot superficial.
49. *Ditto*, Workmanship only, 12 d. per Foot superficial.
50. Dorick Entablature of Deal, with its proper Ornaments, in *London*, at 2 s. per Foot superficial.
51. Centerings in Openings, as Doors, Windows, &c. in *London*, 3 d. $\frac{1}{2}$ per Foot Square.
52. *Ditto*, to plain Arches of Vaults, at 10 s. per Square.
53. Groin-Centering, regular or irregular, in *London*, at 18 s. per Square.
54. Cove Bracketting of Oak, at 6 d. per Foot, superficial.
55. *Ditto*, ——— of Fir, at 5 d. per Foot, superficial.
56. *Ditto*, to common plaistered Cornishes, in *London*, at 4 d. per Foot square.
57. *Ditto*, to Modillions, at 5 d. per Foot square.
58. Steps of common Strings, and String-boards, and Bearers included, in *London*, of Oak at 9 d. per Foot superficial, on the Raifer and Tread.
59. *Ditto*, of Fir, 6 d. per Foot superficial.
60. *Ditto*, better Sort of Fir, in *London*, at 1 s. 3 d. per Foot running.
61. *Ditto*, of second-best Boards, Strings, Bearers, and plain Brackets included, at 9 d. per Foot superficial.
62. *Ditto*,

62. *Ditto*, with clean Deal and carved Brackets, from 12 *d.* to 18 *d.* per Foot superficial.
63. To common Joisting and Boarding to half Paces in *London*, at 8 *d.* per Foot superficial.
64. *Ditto*, of a better Sort, 9 *d.* per Foot superficial.
65. Rails and Ballusters 2 Inches square, at 2 *s.* per Foot running.
66. *Ditto*, 3 Inches square, at 2 *s.* 6 *d.* per Foot running.
67. *Ditto*, 4 Inches square, at 3 *s.* per Foot running.
68. To turned Newels and cap'd, at 2 *s.* 6 *d.* per Foot running.
69. *Ditto*, turned Newels and cap'd square, at 3 *s.* per Foot running.
70. If Circular or Ramping, allow the Price double, or otherwise double Measure, which is the same. And this Rule must be observed for all circular Works in general.
71. To rough whole Deal boarded Floors, shot clear of Sap, in *London* and *Ipswich*, at 25 *s.* per Square.
72. *Ditto*, Workmanship only, at 3 *s.* per Square.
73. Whole Deal boarded Floors, lifted and shot clear of Sap, at 27 *s.* per Square.
74. Workmanship only, at 3 *s.* 6 *d.* per Square.
75. Folding Joint-boarded Floors, plained, lifted, and shot clear of Sap, at 30 *s.* per Square.
76. Workmanship only, at 5 *s.* per Square.
77. Common freight-joint boarded Floors, clear of Sap, at 40 *s.* per Square.
78. Workmanship only, at 7 *s.* 6 *d.* per Square.
79. Second-best boarded Floors, nailed, at 2 *l.* 10 *s.* per Square.
80. Workmanship only, at 9 *s.* per Square.
81. Second-best boarded Floors dowed, 3 *l.* 5 *s.* per Square.
82. Workmanship only, at 12 *s.* per Square.
83. Clean Deal boarded Floors dowed, at 5 *l.* per Square.
84. Workmanship only, at 18 *s.* per Square.
85. *Ditto*, of long Boards, 15 Feet long, and upwards, at 6 *l.* per Square.
86. Workmanship only, at 1 *l.* 1 *s.* per Square.
87. Second-best Floors taken up, relayed, and plained over, at 16 *s.* per Square.

A TABLE, which shews how many 10 or 12 Feet Boards will compleat a Square of Flooring at six several Gauges.

	Inch Gauge.	10 Feet Boards.		Superficial Inches over.		Inch Gauge.	12 Feet Boards.		Superficial Inches over.
At	5	24	and	0	At	5	20	and	0
	6	20	and	0		6	16	and	48
	7	17	and	10		7	14	and	24
	8	15	and	0		8	12	and	48
	9	13	and	30		9	11	and	12
	10	12	and	0		10	10	and	0

88. Boarding with rough Slit Deal, at 14 *s.* per Square.
89. Workmanship only, at 2 *s.* 6 *d.* per Square.
90. Linings of Walls, Plugs and Nails included, in *London*, 18 *d.* per Yard.
91. Work-

91. Workmanship only, at 9 *d.* per Yard.
92. *Ditto*, groved, tongued, and plained, at 2 *d.* $\frac{1}{2}$ per Foot superficial.
93. Weather-boarding Feather-edged, Nails included, in *London*, at 1 *s.* 6 *d.* per Yard.
94. Workmanship only, 3 *d.* per Yard.
95. *Ditto*, in *Ipswich*, to Boards plained and beaded, at 16 *s.* per Square.
96. Workmanship only, at 2 *s.* 6 *d.* per Square.
97. Rough Weather-boarding of Feather-edg'd Deal, Nails included, in *Ipswich*, at 14 *s.* 6 *d.* per Square.
98. Workmanship only, 12 *d.* per Square.
99. Weather Boarding with Oak Boards, in *Ipswich*, Nails included, at 22 *s.* per Square.
100. Workmanship only, at 1 *s.* 6 *d.* per Square.
101. *Ditto*, Hewing and Sawing included, according to the Roughness of the Timber, from 6 *s.* to 7 *s.* per Square.
102. Whole Deal Boarding plained on one Side, nailed against Studs, at 2 *s.* 6 *d.* per Yard square.
103. Workmanship only, at 10 *d.* per Yard square.
104. *Ditto*, plained on both Sides, at 3 *s.* per Yard.
105. Workmanship only, at 12 *d.* per Yard.
106. *Ditto*, groved, tongued, ledged or battened, at 3 *s.* 6 *d.* per Yard superficial.
107. Workmanship only, at 1 *s.* 3 *d.* per Yard.
108. *Ditto*, lined with Slit-Deal, at 5 *s.* per Yard.
109. Workmanship only, at 2 *s.* per Yard.
110. Whole-Deal and Slit-Deal Partitions groved and plained on both Sides, at 2 *s.* per Yard single Measure.
111. Workmanship only, 10 *d.* per Yard.
112. Two-Inch Stuff plained on one Side, at 3 *s.* per Yard.
113. Workmanship only, at 12 *d.* per Yard.
114. *Ditto*, plained on both Sides, at 3 *s.* 8 *d.* per Yard single Measure.
115. Workmanship only, at 1 *s.* 5 *d.* per Yard.
116. *Ditto*, groved, tongued, ledged or battened, at 4 *s.* 6 *d.* per Yard.
117. Workmanship only, at 1 *s.* 8 *d.* per Yard.
118. Two-Inch Oak-plank, lifted and shot clear of Sap, in *London*, at 8 *d.* per Foot.
119. *Ditto*, of Fir, at 6 *d.* per Foot.
120. Three-Inch Oak-plank, at 9 *d.* per Foot.
121. *Ditto*, of Fir, at 6 *d.* per Foot.
122. Four-Inch Oak-plank, at 14 *d.* per Foot.
123. *Ditto*, of Fir, at 10 *d.* per Foot.
124. Ground-Ceiling, the Scantlings 6 by 7, Stuff and Work, in *Ipswich* at 10 *d.* per Foot running.
125. Workmanship only, from 3 *d.* to 4 *d.* per Foot running.
126. Whole Deal Coolers for Brewing, in *Ipswich*, at 12 *d.* per Foot, superficial.
127. Squares for *Ditto*, with 2 Inch Oak-plank, Work, and all Materials, in *Ipswich*, at 1 *s.* 6 *d.* per Foot Cube.
128. *Ditto*, with 3 Inch Oak-plank, at 2 *s.* 6 *d.* per Foot Cube.
129. *Ditto*, with 3 Inch Deal, at 1 *s.* 6 *d.* per Foot Cube.
130. Fencing with rough Whole-Deal, Posts and Rails, in *London*, the Stuff to be returned, at 13 *s.* per Square.

131. Palisading Posts of Oak 6 Inches square, Rails 5 Inches, Pales 3 Inches by 1 $\frac{1}{4}$ of Oak, in *London*, at 4 s. per Foot, running.
132. *Ditto*, of Fir, at 3 s. per Foot running.
133. Four-Foot cleft Pale-fencing, with 10 Feet Rails, when a large Quantity, according to the Nature of the Soil, from 8 s. 6 d. to 9 s. per Rod.
134. *Ditto*, Workmanship, according to the Nature of the Soil it is in, from 2 s. to 2 s. 6 d. per Rod.
135. *Ditto*, if but a small Quantity it cannot be done for less than 10 s. per Rod.
136. Five Feet cleft Pale-Fencing, with 9 Feet Rails, and 3 Rails in a Loop, if a large Quantity, according to the Nature of the Soil, from 12 s. to 12 s. 6 d. per Rod.
137. Workmanship only, from 2 s. 6 d. to 3 s. per Rod.
138. *Ditto*, if a small Quantity, it is worth from 13 s. to 13 s. 6 d. per Rod.
139. Park-paleing, with cleft Pales, from 12 s. to 14 s. per Rod.
140. Workmanship for *Ditto*, including Hewing and Riving, in *Ipswich*, from 2 s. 6 d. to 3 s. per Rod.
141. *Ditto*, with 3 Rails in a Loop, from 16 s. to 18 s. per Rod.
142. Workmanship only for *Ditto*, from 3 s. 6 d. to 4 s. per Rod.
143. *Ditto*, with sawn Pales, from 20 s. to 24 s. per Rod.
144. Work to *Ditto*, Hewing and Sawing included, from 7 s. to 8 s. per Rod.
145. Pole Gates cleft, making, setting up the Posts, and hanging the Gate, Work only, 4 s. per Gate.
146. *Ditto*, Work and Stuff, Post included, 12 s. per Gate.
147. *Ditto*, sawed, with Posts, making, hanging, &c. from 15 to 20 d. per Gate.
148. Work only, from 6 s. to 6 s. 6 d. per Gate.
149. For boarded Fencing, 6 or 7 Feet high, with rough Featheredge Slit-deal, from 18 s. to 20 s. per Rod.
150. Work only, from 3 s. 6 d. to 4 s. per Rod.
151. *Ditto*, plained and beaded, from 21 s. to 22 s. per Rod.
152. Workmanship only, from 4 s. to 4 s. 6 d. per Rod.
153. *Ditto*, Oak Boards plained and beaded, at 1 l. 10 s. per Rod.
154. Workmanship only, from 5 s. to 5 s. 6 d. per Rod.
155. Palisading Post 6 Inches square, upper Rails, 3 $\frac{1}{2}$ by 4, the lower Rail 6 by 3, Pales 3 by 1, the Length of the Pales 4 Feet and $\frac{1}{2}$, the Posts to be 6 Feet above the Ground, so as to allow one Foot and Half under the lower Rail for Brickwork, and to be all of Oak; Carpenter's Work and Stuff only, at 2 s. 6 d. per Foot lineal.
156. *Ditto*, the Pales of Fir, 1 s. 6 d. per Foot.
157. Workmanship only, 1 s. per Foot running.
158. *Ditto*, with Inch and Half square Pales of Oak, at 3 s. per Foot.
159. *Ditto*, the Pales of Fir, at 2 s. 6 d. per Foot.
160. Workmanship only, from 16 d. to 18 d. per Foot running.
161. Palisado Gates, the framed Work of 2 Inch Oak, with Squares of flat Pales, from 9 d. to 10 d. per Foot superficial.
162. Workmanship only, from 3 d. to 4 d. per Foot.
163. *Ditto*, with 3 Inch Stuff of Oak, at 1 s. per Foot superficial.
164. Workmanship only, from 5 d. to 6 d. per Foot.
165. Whole-deal Dressers, with Bearers and Shelves, in *London*, at 8 d. per Foot square.
166. Dressers of 2 Inch Deal, with turned Columns and Bearers, at 12 d. per Foot.
167. *Ditto*, of 2 Inch and $\frac{1}{2}$ Deal, with turned Columns and Bearers, at 14 d. per Foot.
168. Elm

168. Elm or Beech Dressers, in *London*, at 3s. 6d. per Foot Cube.
 169. Six-Pannel Doors, square on both Sides, out of 2 Inch Deal, in *London*, at 10d. per Foot superficial.
 170. Four-Pannel Doors, Inch and $\frac{1}{2}$ thick, square on both Sides, at 9d. per Foot.
 171. Whole-deal Doors, ledged and measured on one Side, at 6d. per Foot superficial.
 172. Ditto, plowed, tongued, and ledged, at 7d. per Foot.
 173. Slit-deal Doors plained and Linings, in *London*, at 3d. per Foot superficial.
 174. Common Two-pannel Doors, about 6 Feet high, and 3 Feet wide, wrought with a quarter Round, and flat Pannels with Caseings included, in *Ipswich*, from 8s. to 10s. per Door.
 175. Workmanship only, from 3s. to 4s. per Door.
 176. Gates of whole Deal lined with whole Deal, at 9d. per Foot superficial.

SECT. II. Of JOINERS Work, as Wainscoting, Sashes, &c.

Wainscoting is a Work generally done by the Joiners, and is measured by the Yard square, and their Dimensions are taken in Feet and Inches. Thus, they girt down every Moulding (with a String) contained between the Ceiling and Floor, which they take for the Height of the Room, and the Circumference of the Room they take for the Length, deducting the Chimney from thence, if of *Stone*, but if *Wood*, no Deduction is made. The Seats of Windows, Cheeks, Sopshtas, Linings, &c. are all to be taken by themselves; also Doors, Window-shutters of whole Deal, are all allowed Work and half Work; or double Work, if of two Inch Stuff, in regard to their being worked on both Sides.

To make this yet more plain, I shall shew the Method of taking Dimensions by an Example of one Room that is wainscoted, which will be sufficient for any Number of them. Suppose then for the Circumference of the Room, that the

	F.	I.	
South Side was	17	9	
West Side	15	2	
North Side	17	6	
East Side	15	8	
The Advance or Sides of the Chimney	12	4	
Whole Round	68	5	} Products.
Height	11	2	
Half of Shutters	6	2	} 763 11 10
3 Times for 3 Windows	31	7	
Linings round the Windows three Times	19	2	} 29 3 6
	31	0 11	
Linings to the Door	17	0	} 52 8 6
	0	8	
Half Work of the Door	7	0	} 11 4
	1	6	
	In all		} 867 09 10
For the Chimney deduct	5	1	
	4	2	} 21 2 2
Feet in the whole			
			} 9)846 7 8
Yards in the whole			
			} 94 0 7 $\frac{2}{3}$

which

which being divided by 9 (the Feet in a square Yard) gives 94 Yards, 0 Feet, 7 Inches $\frac{3}{4}$, the Quantity of Wainscoting in this Room as required.

Frontispieces are measured and valued by the Foot superficial, and every Part thereof measured separately, viz. the Architrave, Frieze, and Cornish, each of them by themselves, also the Pilasters or Columns by themselves; and, lastly, add all the several Measurements together, and the Product is the Content of the Whole.

Note, That in taking the Dimensions, you must girt the Mouldings with a String.

The Prices of Joiners Work.

1. Wainscoting with Norway Oak, Stuff and Workmanship, in London, 7 s. per Yard superficial.
2. Workmanship only, 2 s. per Yard.
3. Large Bisection Wainscoting with Dantzick Stuff, at 6 s. per Yard.
4. Workmanship only, at 2 s. per Yard.
5. Ordinary Bisection Wainscoting with Deal, at 4 s. per Yard.
6. Workmanship only, at 1 s. 6 d. per Yard.
7. Deal Wainscoting with quarter round, and the Pannels raised with a Bead, in London, at 4 s. per Yard.
8. Workmanship only, at 1 s. 3 d. per Yard.
9. Ditto, with a quarter round, and Pannels raised square, at 3 s. 9 d. per Yard.
10. Workmanship only, at 1 s. 2 d. per Yard.
11. Ditto, Quarter-round and flat Pannels, at 3 s. per Yard.
12. Workmanship only, at 12 d. per Yard.
13. Plain square Deal Wainscoting, at 2 s. 6 d. per Yard.
14. Workmanship only, at 9 d. per Yard.
15. All Mouldings whatever that are not wrought with common Planes, but worked by Hand (as the Joiners phrase it) as Impost-mouldings, Bases, Architraves, Pilasters, Columns, Cornishes, &c. are to be measured in superficial Feet, and to allow for the same from 12 d. to 18 d. per Foot.
16. Workmanship only, from 6 d. to 9 d. per Foot, according to the Goodness of the Workmanship: Except there is an Agreement to measure these Mouldings in at the Price of the Wainscoting, as is sometimes done.
17. Inch and Half Wainscot Sashes in London, at 8 d. per Foot square.
18. Workmanship only, 2 $\frac{1}{2}$ d. per Foot.
19. Ditto, with Deal Case-frames, Wainscot-Pulley-pieces, and Oak-Soils, to run double, at 1 s. 3 d. per Foot.
20. Workmanship only, at 3 s. per Frame.
21. Ditto, with right Wainscot Frames, at 1 s. 8 d. per Foot.
22. Workmanship only, at 3 s. 6 d. per Frame.
23. Two Inch Wainscot Sashes in London, at 11 d. per Foot.
24. Workmanship only, at 4 d. per Foot.
25. Ditto, with Deal Case-frames, Wainscot Pulley-pieces, and Oak-Soils, at 1 s. 8 d. per Foot.
26. Workmanship only, at 3 s. 6 d. per Frame.
27. Ditto, with right Wainscot Frames, at 2 s. 4 d. per Foot.
28. Workmanship only, at 4 s. per Frame.
29. Inch and Half Deal Sashes, in London and Ipswich, at 7 d. per Foot superficial.
30. Ditto, with Deal Case-frames, and Pulley-pieces of Deal, and Oak-Soils, at 12 d. per Foot.
31. Girt

31. Girt and Lutheran Windows made of Oak, the Stuff 3 by 4, in Ipswich, at 6 d. per Foot.

32. Ditto, of Fir, at 4 d. per Foot.

33. Workmanship only, from 1 $\frac{1}{2}$ d. to 2 d. per Foot.

N. B. In any of the above Articles, where there is any Carriage of the Materials required, it must be allowed for.

SECT. III. Of BRICKLAYERS Work.

IN this Section I shall explain all that is needful for the performing of *Brickwork*; not only in the Method of Measuring, but also the *Prices* of the several Kinds of Work done by *Bricklayers*.

But first, it will be necessary to consider the *Digging* out of the *Cellars* or *Foundations*, for till that be done, the *Brickwork* cannot be begun.

Digging then is a Work done by the Yard of *cubic* or *solid* Measure, containing 27 Feet, or 3 Feet every Way, viz. in *Length*, *Breadth* and *Depth*.

In taking Dimensions they are not so exact as in other Works, for they rarely take them nearer than to the Quarters of Feet.

Admit, for *Example*, a Cellar or lower Part of a Building is to be performed, that is 45 Feet 3 Inches long, 21 Feet 6 Inches wide, and 6 Feet 3 Inches deep. What Number of Yards is therein?

			F.	I.	
The Length	—	—	45	3	
The Breadth	—	—	21	6	
			45		
			90		
Feet multiplied	—	—	945	0	
Feet by Inches	—	—	5	3	
Ditto,	—	—	22	6	
Inches by Inches	—	—		1	6
			972	10	6
			6	3	0
Feet multiplied	—	—	5832	0	0
Feet by Inches	—	—	5	0	0
Feet by Parts	—	—	0	3	0
Feet by Inches	—	—	243	0	0
Inches by Inches	—	—	0	2	6
Inches by Parts	—	—	0	0	1
			6080	5	7
				6	

Superficial Content.
The Depth.

Solid Content.

So that the solid Feet contained in such a Foundation, are 6080 Feet; which, to reduce into Yards, must be divided by 27 (the solid Feet in a Yard) thus;

27)6080(225 Solid Yards

54

68

54

140

135

Solid Feet . . 5 remains,

which is something better than $\frac{1}{6}$ Part of a Yard more. As for the Inches and Parts, they are always omitted.

I. The Digging Foundations in *London*, 5 d. per Yard Cube.

II. *Ditto*, and carrying away 1 s. 8 d. per Yard Cube.

Note, *The Price will differ according to the Variety of the Ground to be dug out, as Clay, Gravel, Loam, Flint, Chalk, &c. but is chiefly done from 3 d. to 6 d. per Yard. — But here observe, that the Charge of carrying away the Earth and other Rubbish, is to be considered and added accordingly.*

The principal Work in Building performed by Bricklayers, is Walling and Tyl-ing; and what is to be observed therein is,

1. That the Measure by which Brickwork is measured, is a square Rod, or $16\frac{1}{2}$ Feet square, equal to 272 Feet 3 Inches.

Note, *That although there be 272 Feet and a $\frac{1}{4}$ in a Rod of Brickwork at the Standard Thickness, yet Workmen in measuring of Brickwork, always reject the Quarter, and divide by 272 only.*

2. That the Manner of measuring Brickwork hath no sort of Difference from any other superficial Measure; if the Thickness be but equal to the Standard Thickness, viz. one Brick and a Half.

III. To reduce Brickwork of any Thickness to the Standard Thickness of one Brick and a Half.

R U L E.

Multiply the Number of Feet contained in the superficial Content of the Wall, by the Number of half Bricks that the Wall is in Thickness; which Product divided by 3, the Quotient is the true Content of Brickwork required, reduced to the Standard Thickness of one Brick and a Half.

IV. Observe the several Thicknesses of the Walls, and that you make every Deduction out of its proper Thickness. Also, that when you measure two Walls that constitute an Angle, the Length of one must be taken to the Outside, and the other to the Inside.

V. When you measure Chimnies, measure them as a solid Wall, and deduct the Vacancy between the Jaumbs and the Mantle, the Funnels are allowed solid, in regard to the Trouble of them, and the pargetting the Inside.

VI. For *Angle Chimnies*, such as stand in a square Corner, and are equal each Way from the Corner, observe this Rule: Multiply Half the Breadth of the Breast or Front, by the Height of the Story, and that Product by the Number of half Bricks contained in the Inches of the half Breadth of the Breast or Front, and divide this last Product by 3, then the Quotient will be the true reduced Content in Feet, out of which must be deducted the Vacancy as in square Chimnies.

VII. If the Chimney do not stand equal from the Corner of the Room on both Sides, or the Corner be not square, it is usual to lay out the Angle parallel to the Walls, and take one Side of the Angle, and multiply by the Height of the Story, and Half the other Side of the Angle for the Thickness: Then proceed in every Respect as before directed, and it will give the true reduced Content required.

Remember to measure the Trimmers that support the Hearths, taking the Length by the Girt of the Arching of them, accounting them half a Brick thick, so that if they are 6 Feet long, and 1 Foot 6 Inches Girt, there is 3 Feet of reduced Brickwork therein.

E X A M P L E.

Suppose a Chimney that stands in the Corner or Angle of a square Room, be 7 Feet 6 Inches in Front, and the Height of the Story 10 Feet 6 Inches, and the Opening 3 Feet 6 Inches square, and 18 Inches deep: How many Feet of reduced Brickwork are contained therein?

F. I.

10 6 Height of the Story.
3 9 Half the Front.

30 0
1 6
7 6
4 6

39 4 6

10 Half Bricks in 3 Feet 9 Inches,
or half the Length of the Front.

3)393 9 0(131 9

3 6 The Opening.
3 6

9 0
1 6
1 6
3

12 3

4 Half Brick.

3)49 0(16. 1 Reduced Feet in the Opening
to be deducted.

131 9 The reduced Content of the Chimney.
16 1 Opening to be deducted.

115 8 The Contents required.

By the above Operation it appears, there are 131 Feet 9 Inches of reduced Brickwork in the Chimney; from which if you subtract 16 Feet 1 Inch, the Content of the Opening, you will find the Remains to be 115 Feet 8 Inches of neat Brickwork, the Content required.

Example of the Reduction of Brickwork.

Suppose a Wall, or the Addition of several Lengths of Walling to be 324 Feet, and the Thickness of two Bricks: How much reduced Brickwork is therein?

324. Super-

	324	Superficial Content.
Multiplied by	4	The Number of half Bricks.
Divide by the Number of half Bricks	3	1296 (432 Feet reduced.
in the Standard	12	
	9	
	6	
	6	
	0	

By which you see there are 432 Feet of Brickwork reduced, and so of any other; which, to bring into Rods, observe this *Rule*. Let the Product be multiplied by 16 (which are the square Quarters in a Foot) and then dividing by 4356, being the square Quarters in a Rod, and the Answer is the Number of Rods, and the Remains (if any) divided by 16, will be the Feet therein: Thus in the Example before mentioned,

	432	Superficial Content.
Multiplied by	16	The square Quarters in a Foot.
	2592	
	432	
Square Quarters in a Rod	4356	6912 (1 Rod
Quarters in a Foot	16	2556 (159
	95	
	80	
	156	
	144	
	12	

So that 432 superficial reduced Feet is 1 Rod 159 Feet of Brickwork; and so of all other Sums.

VIII. The Materials required in a Rod of Brickwork, reduced to the Standard, are 4500 Bricks, 1 Hundred and a Quarter of Lime, and 2 Load and a Half of Sand. In found and new Work, a Bricklayer will lay a Thousand Bricks in a Day, at which Rate, one Rod of Brickwork will amount to for Workmanship 16 s. per Rod, for Work and all Materials, 5 l. 10 s. or 6 l. per Rod.

There are other Kinds of Brickwork performed by the Foot Measure, and such are Facia's, Arches over the Doors, Windows, &c. Architraves, Friezes, Cornishes, Rustics,

Rustics, Returns, &c. Piers, Columns, Pilasters, &c. all which are valued according to the Goodness of the Work; but rubbed Arches of any Sort are done for 12 *d.* per Foot Workmanship only; but if the Workman find Materials 18 *d.* or 20 *d.* per Foot.

1. Red Stock Bricks in *London*, at 1 *l.* 10 *s.* per Thousand.
2. Grey Stock Bricks in *London*, at 1 *l.* per Thousand.
3. Place Bricks in *London*, at 14 *s.* per Thousand.
4. Red and Grey Bricks mixed, in *Ipswich*, at 1 *l.* per Thousand.
5. Cutting Bricks, for rubbed and gauged Work in *Ipswich*, from 40 *s.* to 2 *l.* 10 *s.* per Thousand.
6. Plain Tiles in *London* and *Ipswich*, at 1 *l.* per Thousand.
7. Pan Tiles in *London*, at 3 *l.* per Thousand.
8. *Ditto*, in *Ipswich*, at 3 *l.* 10 *s.* per Thousand.
9. Dutch glazed Pan Tiles in *Ipswich*, at 10 *s.* per Hundred.
10. Gutter Tiles at 16 *s.* per Hundred.
11. Brickwork done with all Place Brick in *London*, at 5 *l.* 5 *s.* per Rod, or 272 Feet, at the Statute Thickness of a Brick and Half thick.
12. *Ditto*, with the Fronts faced with Grey Stock Bricks, at 5 *l.* 10 *s.* per Rod.
13. Brick Walls in *Ipswich*, with common Bricks at the lowest Price, 6 *l.* 12 *s.* per Rod.
14. Brick Fronts with rubbed Returns, exclusive of the Arches, in *Ipswich*, from 7 *l.* to 8 *l.* per Rod.

Whereas there is a wide Difference in the Value of one Rod of Brickwork, according to the various Customs of Countries, as in the above cited Places, *viz.* *London* and *Ipswich*, it will not be amiss to make the following Observations wherein this Difference consisteth.

It is said above, that a Rod of Brickwork with all Place Bricks in *London* is 5 *l.* 5 *s.* and in *Ipswich*, for a Rod of Brick-walling with common Bricks, will cost 6 *l.* 12 *s.* This Difference proceeds from the different Prices of Bricks in *London* and at *Ipswich*; for in the former, the Place Bricks are sold at 14 *s.* per Thousand, and in the latter, the common Bricks are sold at 20 *s.* per Thousand (as above.) Now if we consider that there are 4500 of Bricks required to a Rod, which, at 14 *s.* per Thousand, the Price of the *London* Place Bricks is but 3 *l.* 3 *s.* whereas the same Number of the common Bricks at 20 *s.* per Thousand, as in *Ipswich*, amounts to 4 *l.* 10 *s.* And, if we allow the Charge of the Mortar and Workmanship, to a Rod of Brickwork, equal at both Places, there must necessarily be the above Difference in the Charge of one Rod of Brickwork in *London* and at *Ipswich*.

Note, That thirty-two Statute Bricks laid flat, will pave a Yard square, and so will sixty-four laid Edge-ways.

15. Red and Grey Arches gauged, and set in Putty in *London*, at 1 *s.* 4 *d.* per Foot superficial.
16. Rubbed Arches of any Sort with fine red Bricks in *Ipswich*, from 18 *d.* to 20 *d.* per Foot.
17. Workmanship only, from 10 *d.* to 12 *d.* per Foot.
18. Rubbed Returns in *London*, at 3 *d.* per Foot superficial.
19. Groins cut to Arches, at 6 *d.* per Foot running.
20. Plain Facia's rubbed, in *Ipswich*, at 13 *d.* per Foot.
21. Workmanship only, at 8 *d.* per Foot.
22. Brick Cornishes, with fine rubbing Bricks, in *Ipswich*, from 4 *s.* to 5 *s.* per Foot, lineal Measure.
23. Work-

- 23. Workmanship only, from 3 s. to 3 s. 6 d. per Foot.
- 24. Under-pinning in *Ipswich*, from 5 d. to 6 d. per Foot running.
- 25. Workmanship only, from 1 d. to 1 ½ d. per Foot.
- 26. Digging and Bricking of new Wells, the Depth only being considered, at *Ipswich*, at 7 s. 6 d. per Foot.
- 27. Workmanship only, at 2 s. 6 d. per Foot.
- 28. Place Bricks Paving, laid flat and dry, in *London*, at 14 d. per Yard superficial, or 9 square Feet.
- 29. *Ditto*, in Mortar, at 16 d. per Yard.

Note. See the *Doctrine of Party-Walls* at the End of this Chapter.

IX. *Of Tiling.* Tiling is measured by the square of 10 Feet, as Carpenters measure their Roofs. You must observe in taking Dimensions of Tiling, that you measure the whole Length; that is, as far as the Tiles are laid for your Length, and take from the Ridge to the Eaves for your Breadth or Depth, and thereby you will have the true Content of the Tiling required. When many Hips and Vallies happen in a Roof, every Foot running must be added to the Measure, or square Feet. The Quantity of Materials required in a square of Tiling, at a nine Inch Gage, will be 665 Tiles, and at a seven Inch Gage 740 Tiles, one Peck of Tile-pins, 2 Bushels and two-thirds of Lime, 5 Bushels of Sand, and 1 Bundle of Lathes; and to a Bundle of 5 Feet Lathes, there is required 500 of Nails, at six Score to the Hundred; and to a Bundle of 4 Feet, 600 Nails; and commonly one of the Squares is accounted a Day's Work for a Trowel-man and a Labourer. The Charge of a Square of Tiling, if the Workman find Materials, is about 1 l. 10 s. per Square.

- 30. Twelve Inch Tile-paving in *London*, at 3 s. 6 d. per Yard.
 - 31. Ten Inch *Ditto*, at 3 s. per Yard.
 - 32. Plain Tiling in *London*, at 1 l. 6 s. per Square, or 100 superficial Feet.
 - 33. *Ditto*, in *Ipswich*, at 1 l. 8 s. per Square.
 - 34. Workmanship only, from 3 s. 6 d. to 4 s. per Square.
 - 35. To find all Materials, exclusive of Tiles, at 10 s. per Square.
 - 36. Old plain Tiling ripped, in *London*, at 14 s. per Square.
 - 37. *Ditto*, in *Ipswich*, according to the Goodness of the Tiles, from 14 s. to 18 s. per Square.
 - 38. Pantiling not pointed, in *London*, at 18 s. per Square.
 - 39. *Ditto*, pointed, at 1 l. per Square.
 - 40. Workmanship when pointed, at 1 s. 8 d. per Square.
- In *Ipswich* Pantiling is valued the same in every Respect as at *London*.
- 41. Pantiling with old Pantiles, at 10 s. per Square.
 - 42. Dutch glaz'd Pantiling in *Ipswich*, at 1 l. 15 s. per Square.
 - 43. *English Ditto*, at 1 l. 10 s. per Square.

Besides all the above Works there comes to the Bricklayers Hands, the Paving of Kitchens, Cellars, &c. with Brick or Pammants, which Work is measured by the Yard square, containing 9 square Feet.

Note. The following Advertisement may not be unacceptable to some Readers.

To be Sold, at Chalkhouse Tile-Kiln at Primrose Hill, by Hampstead-Road.

Plain Tiles 20 s. per 1000. Pantiles 6 s. per. 100. Ridge Tiles One Penny each. These to be delivered all well burnt; the Tiling will want no mending for many Years: But there are so many Sammel, or half burnt, amongst these commonly used, that the Tiling will not hold a wet or frosty Winter. Hard Paving Bricks, at 28 s. per. 1000. Hard Tiles a Foot square, Inch 3 quarters thick, at 18 s. per 100. *Ditto*, ten Inches square, Inch and half thick, at 8 s. per Hundred. These being made of a strong Clay, and thicker than common; those that are hard burnt, endure equal to Stone, for Parapet Walls, Pavements, and Chimney-Hearths, and will not break or decay like those commonly used; and those not so hard burnt, are found to answer for Bottoms of Ovens, and setting Coppers and Furnaces.

Two Shillings in the Pound allowed for ready Money.

44. *Slating*

44. *Slating* with Can Quarry Slates, in *London*, at 1 *l.* 10 *s.* per Square, or 100 superficial Feet.

45. *Ditto*, on O. G. Roofs, at 2 *l.* per Square.

46. *Ditto*, new ripped and laid, at 1 *l.* per Square.

X. *Of Thatching.* Thatching is a Work performed by the Square, and is measured the same as the Tiling. The Materials required in Thatching, are Straw, Lathes, Nails, Withes and Rods. One Load of Straw will do one Square and a half. One Bundle of Lathes one Square. One Hundred of Withes will do 3 Square, or one Pound of Rope-yarn will do one Square. One Hundred of Thatching Rods, at 6 *d.* will do 3 Square; and to a Square of Thatching, there is required two Hundred and an Half of Nails.

Thatchers Work is done by the Square of an 100 superficial Feet.

1. Thatching-work, and all Materials, in *Ipswich*, at 10 *s.* 6 *d.* per Square.

2. *Ditto*, Workmanship only, at 4 *s.* per Square.

SECT. IV. Of PLAISTERERS Work.

Plasterers Work is of two Kinds; namely,

1. Work lathed and plaistered, called *Cieling*; and,
2. Work rendered, which is also of two Kinds, *viz.* Rendering upon Brickwork, or in Partitioning between Quarters. The principal Thing to be regarded herein, is, (1.) To make Deductions for all Chimnies, Doors, and Windows, and measuring the Jaumbs and Heads. (2.) If the Workman find Materials for rendering between Quarters, you must deduct one fifth Part for Quarters, Braces, &c. but if Workmanship only is found, you must measure the Whole as whole Work; for the Workman could have performed the Whole much sooner, if there had been no Quarters there. (3.) In measuring Whiting and Colouring between Quartering, there must be a fourth Part allowed extraordinary for the Returns of the Quarters.

The abovementioned Work is performed by the Yard Square, superficial Measure; and the Dimensions are taken in Feet and Inches. (4.) That such Summers Girders as lie below a Cieling be deducted, if a Workman finds the Materials, otherwise not.

The Prices of Plaisterers Work.

1. Grey Plaister Floors two Inches and a Half thick, in *London*, at 2 *l.* 5 *s.* per Square.
2. Workmanship only, at 1 *l.* per Square.
3. Red Plaister Floors, *ditto*, at 3 *l.* 5 *s.* per Square.
4. Workmanship only, at 1 *l.* 5 *s.* per Square.
5. Stoco on Fir Lathes, in *London*, at 1 *s.* 10 *d.* per Yard square.
6. Workmanship only, at 10 *d.* per Yard.
7. Stoco on Oak Lathes, at 2 *s.* 1 *d.* per Yard.
8. Workmanship only, at 10 *d.* per Yard.
9. Stoco on Brick Walls, at 1 *s.* 5 *d.* per Yard.
10. Workmanship only, at 10 *d.* per Yard.
11. Floated Ceilings, in *London*, at 1 *s.* per Yard square.
12. Workmanship only, at 5 *d.* per Yard.
13. Common Ceilings not floated, at 9 *d.* per Yard.
14. Workmanship only, at 3 $\frac{1}{2}$ *d.* per Yard.

15. Floated Rendering, in *London*, at 6 *d.* per Yard.
16. Workmanship only, at 2 $\frac{1}{2}$ *d.* per Yard.
17. Common Rendering at 4 *d.* per Yard.
18. Workmanship only, at 1 $\frac{1}{2}$ *d.* per Yard.
19. Rendering on Groins, at 5 *d.* per Yard.
20. Workmanship only, at 2 *d.* per Yard.
21. Lime white, and Whitening of old Work, in *London*, at 1 $\frac{1}{2}$ *d.* per Yard.
22. Workmanship only, at a *Half-penny* per Yard.
23. Whitening of new Work at 1 *d.* per Yard.
24. *Ditto*, Workmanship only, at $\frac{1}{2}$ *d.* per Yard.

Note, For the Materials of the following Ornaments, you may allow 2 *d.* per Foot, if it be of fine Stuff.

25. Inriched Mouldings to Pannels in Cielings, &c. in *London*, at 1 *s.* 7 *d.* per Foot, running.
26. Plain Mouldings to Cornishes, &c. at 8 *d.* per Foot.
27. *Corinthian* Cornishes, fully enriched, at 1 *s.* 10 *d.* per Foot.
28. *Ionick ditto*, at 1 *s.* 6 *d.* per Foot.
29. Plain, *ditto*, at 1 *s.* 2 *d.* per Foot.
30. Inriched Friezes with Oak Leaves, Acorns, &c. at 1 *s.* 8 *d.* per Foot.
31. Large Frames on Stair-cafes, &c. fully inriched, at 1 *s.* 8 *d.* per Foot.
32. Large Festoons of Fruit and Flowers, &c. at 3 *s.* 6 *d.* per Foot.

The following Rough-casting and Plaistering is done by Bricklayers in *Ipswich*.

33. Common Rough-casting per Yard, square Work, and all Materials, from 1 *s.* to 1 *s.* 4 *d.*
34. *Ditto*, Workmanship only, per Yard, from 5 *d.* to 6 *d.*
35. *Ditto*, with Stone, Mortar, and raised Pannels, at 2 *s.* per Yard.
36. *Ditto*, for Workmanship only, at 8 *d.* per Yard.
37. *Ditto*, with Stone Mortar, done in Imitation of Stone-work, well floated and jointed, at 2 *s.* 6 *d.* per Yard.
38. *Ditto*, Workmanship only, with Lathing, at 8 *d.* per Yard.
39. Plaistering upon Brick-work with finishing Mortar, in Imitation of Stone-work, at 1 *s.* 6 *d.* per Yard.
40. *Ditto*, Workmanship only, at 6 *d.* per Yard.
41. For Lathing and Plaistering of Inside-work, with Materials, at 10 *d.* per Yard.
42. *Ditto*, Workmanship only, at 4 *d.* per Yard.
43. Rendering on Brick-work with Hair-mortar, at 6 *d.* per Yard.
44. *Ditto*, Workmanship only, at 2 *d.* per Yard.
45. For Lathing and Plaistering of Cielings with Hair Mortar, at 1 *s.* per Yard.
46. *Ditto*, Workmanship only, at 4 *d.* per Yard.
47. For White-washing, with Whitening and Size, Work and Materials, at 2 *d.* per Yard square.

Note, One Bundle of Oaken Sap-Laths, is sufficient for seven Yards of Plaistering : And one Bundle of Heart-Laths for six Yards.

N. B. In all these Works the Scaffolding is to be considered ; and the Quantity of Lime and fine Sand for finishing Mortar must be equal.

SECT. V. Of MASONS Work.

MASONS Work is measured by the Foot, either superficial or solid, and sometimes both. The Dimensions are taken in Feet, Inches, and Parts. The Solids are Blocks of Marble, or any Kind of Stone, Columns, Cornices, &c. The Superficies are Pavement, Slabbs, Chimney-pieces, and the like. It is to be observed, that Masons first measure the Cube of the Stone, and then superficial plain Work, also superficial moulded Work, if any, as follows:

First, they account all such Stones as are above 2 Inches thick, at so much per Foot, solid Measure; and for the Workmanship they measure the Superficies of the Stone; but then they measure no more of the Stone than what appears without the Wall.

As for Example; Suppose a solid moulded astragal Step to be measured, which is 10 Feet 2 Inches long, 13 Inches wide, and 6 Inches high, how much of each Sort is contained therein.

First, for the solid Measure, proceed as in the Margin, and you will have 5 Feet 6 Inches and $\frac{1}{2}$ for the solid Content.

F.	In.	
10	2	the Length.
1	1	the Breadth.

10	2
10	2

Also, there will appear to be 11 Feet and $\frac{2}{3}$ of an Inch for the superficial plain Work. But for the moulded Work, another Dimension must be formed thus, — — — and the moulded astragal Front will be — — — and will produce as in the Margin, 6 Feet, 9 Inches, and $\frac{1}{2}$ or $\frac{2}{3}$ of an Inch superficial moulded.

11	0	2	superficial Content.
	6		the Depth.
5	6	1	solid Content.

10	2	the Length.
8		Girt at least
6	8	
1	4	

6	9	4	superficial moulded.
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But as their Method of measuring is not so well understood by many, as some others, it may be proper to give an Example how to measure a Chimney-piece, as a Guide to all others.

The Length of the Mantle and Slabb
Breadth of *Ditto*.

F.	In.	Products.
4	9	14 7 9
3	1	

Length of the Jaumbs to *Ditto*. —
Breadth of the two added together —

F.	In.	
4	1	7 9 11
1	11	

Total	—	22	5	8
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So that such a Chimney-piece contains 22 Feet, 5 Inches, and $\frac{8}{12}$ or $\frac{2}{3}$. But sometimes there is Marble Slips, Noseings and Coveings, which are also measured superficial. Fire-stone Hearths, and Coveing-stones, must be cast by themselves, and all

all that appears in Sight, measured in the same Manner, and at the following Prices, viz.

1. **B** L A C K and white veined *Italian* Marble, at 1 l. per Foot, Cube.
2. Superficial plain Work on *ditto*, at 3 s. per Foot.
3. Superficial moulded Work, on *ditto*, at 5 s. per Foot.
4. Slabbs of *ditto*, in Chimney-pieces, at 5 s. per Foot, superficial.
5. *Purple* Marble in Slabbs, at 8 s. per Foot, superficial.
6. *Dove* Marble at 6 s. per Foot, superficial.
7. *Portland* Stone, measured when wrought, in *London*, at 2 s. per Foot cubical Measure.
8. *Ditto*, in *Ipswich*, at 2 s. 3 d. per Foot, Cube.
9. *Portland* Stone, freight plain Work, in *London*, at 1 s. per Foot, superficial.
10. *Ditto*, circular plain, at 1 s. 2 d. per Foot, *ditto*.
11. *Ditto*, freight moulded Work, at 1 s. 2 d. per Foot, *ditto*.
12. *Ditto*, circular moulded Work, at 1 s. 4 d. per Foot, superficial.
13. *Bath* Stone measured when wrought, in *London*, at 1 s. 6 d. per Foot, Cube.
14. *Ditto*, freight plain Work, in *London*, at 5 d. per Foot, superficial.
15. *Ditto*, circular plain Work, at 7 d. per Foot, *ditto*.
16. *Ditto*, freight moulded Work, at 7 d. per Foot, square.
17. *Ditto*, circular moulded Work, at 9 d. per Foot, square.
18. *Portland* Stone Chimney-pieces, Inch and half thick, in *London*, at 1 s. 6 d. per Foot, superficial.
19. *Ditto*, if 2 Inches thick, at 2 s. per Foot.
20. *Rygate* Fire-stone, Hearth and Coveings, in *London*, at 1 s. per Foot, superficial.
21. *Portland* Paving, at Inch and Half thick, at 1 s. 4 d. per Foot, superficial.
22. *Ditto*, with black Marble Dotts, at 1 s. 8 d. per Foot, superficial.
23. *Purbeck* Paving in random Courses, at 7 d. per Foot.
24. *Ditto*, in freight Courses, at 8 d. per Foot.
25. Old *Purbeck* Paving, squared and laid, at 2 d. per Foot.
26. Black and white Marble Squares, at 2 s. 6 d. per Foot, superficial.
27. White and veined Marble Slabb in Chimney-pieces in *London*, at 5 s. per Foot, superficial.
28. Statuary Marble Slabb, in *ditto*, at 6 s. 6 d. per Foot.
29. Black and yellow Marble Slabb, in *ditto*, at 7 s. 6 d. per Foot square.
30. *Purple* common, in *ditto*, at 6 s. per Foot, superficial.
31. *Portland* astragal Steps, at 3 s. 6 d. per Foot, running Measure.
32. Plain, *ditto*, at 3 s. per Foot, running.
33. *Purbeck* Steps, at 2 s. per Foot, running.
34. *Portland* Copeing, of about one Foot wide, three Inches one Side, and one and a half the other, in Thickness, at 1 s. 6 d. per Foot, running.
35. *Ditto*, but when larger, to be cubed first, and then measured superficial plain Work.
36. So all *Portland* Curbs for Iron Work, &c. must be cubed first, and then measured superficial plain Work.
37. Also the Holes cut in the same, for Iron, at 2 d. per Hole.
38. Bases of Columns, Architraves, Friezes, Cornishes, &c. of Marble, are, for Workmanship, 5 s. per Foot, superficial.

39. The Shafts of Columns and Pilasters, fluting on Portland Stone, Work only, at 1 s. 6 d. per Foot, Facio-work.

40. Carving the Capitals for the Corinthian and Composite Orders, from 6 s. to 7 s. per Foot, Facio-work, exclusive of the Stone.

Note, Where in the above Articles and Prices, there is no mention made of the Place where the Work is done at that Rate, it is, because I know of no material Difference between the Prices in London, and at Ipswich, in those Articles.

N. B. These Prices (especially in the Marble) must sometimes be augmented according to the Beauty and Goodness of the Stone.

SECT. VI. Of GLAZIERS Work.

GLaziers Work is measured by the superficial Foot, and the Dimensions may be taken in Feet, Inches, and Parts, but more accurately by Feet and the hundredth Parts of a Foot, as their Rules are generally divided. The principal Things to be observed therein are these:

Where Windows are all of one Size, you need measure but one, and observing the Number of Times account for them all.

To measure circular or oval Windows, take the same Length and Breadth as their Diameters, as if they had been square Windows; because in cutting out the Quarries of Glass, there is a great Waste, and more Time expended therein, than if it had been a square Window.

For the better understanding this Method of Measuring, I shall shew an Example or two, both by X Multiplication and Decimals; therefore, supposing a Light of leaded Glass to be 3 Feet 9 Inches long, and 1 Foot 3 Inches wide.

By X Multiplication it is thus,

F.	In.	
3	9	The Length.
1	3	The Breadth.
3	9	
	9	
	2	3
4	8	3 Content.

But on the Glaziers Rule, where the Foot is divided into 100 Parts, you will find the Numbers must stand thus,

3.75	The Length.
1.25	The Breadth.
1875	
753	
375	
4.6875	Content.

and the whole Content will appear both Ways to be 4 Feet, 8 Inches, and $\frac{3}{4}$.

Again, in measuring Squares of Sashes, no more than one need be set down, or cast up, for having one multiplied by the whole Number, it will give the Content of them all.

For Example, If a Sash-window have 18 Squares, and each Square is 1 Foot 2 Inches, or 1.17 Parts, in Length; and 9 Inches and $\frac{1}{4}$, or 77 Parts, in Breadth; How much Glass is therein?

By

By X Multiplication,				Decimally.	
F.	In.	Pts.			
1	2	0	long.	1.17	long.
0	9	3	broad.	.77	broad.
0	9	0		819	
0	1	6		819	
0	0	3	6		
0	10	9	6	9009	Total of one.
Multiplied by 18 the Number of				Multiplied by 18	The Number of
Total 16 2 3 0				72072	Squares.
So that in this Window is 16 Feet, 2				9009	
Inches, and a Quarter.					
				16.2162	Total.

N. B. *There is at present an Act of Parliament in Force, that lays a Duty upon Glafs; but, as it is expected this Act will be repealed, and the Duty taken off the next Sessions of Parliament, the Prices here stand the same as they were before that Act commenced.*

And it is to be observed, that till the said Duty is taken off, about one third more is to be added to the following Prices, except where the Workmanship only is spoke of.

1. *CROWN Glafs in Sashes, measured neat, at 11 d. per Foot, in London.*
 2. *Ditto, the middle Bars included, at 10 d. per Foot, superficial.*
 3. *Sashes glazed with Crown Glafs, puttied on both Sides, in Ipswich, from 12 d. to 1 s. 2 d. per Foot.*
 4. *Crown Glafs Glazing, leaded, at 8 d. per Foot in London.*
 5. *Newcastle Glafs in Sashes, in London, from 6 d. to 8 d. per Foot, superficial.*
 6. *Ditto, in Lead, at 5 d. per Foot, superficial.*
 7. *Sashes glazed with waved or jealous Glafs, at 2 s. 6 d. per Foot.*
 8. *Ditto, with Plate Glafs, Diamond cut, from one to two Foot, at 5 s. per Foot.*
 9. *Ditto, from two to three Foot Panes, at 5 s. 6 d. per Foot.*
 10. *Ditto, from three to four Foot Panes, at 6 s. per Foot.*
 11. *Glazing with Squares and Quarries, in Ipswich, according to the Goodness of the Glafs, from 5 d. to 8 d. per Foot.*
 12. *Ditto, for Glazing with Squares, Work, Sodder, and Lead only, at 2 d. $\frac{1}{2}$ per Foot.*
 13. *Ditto, Workmanship only, at 1 d. $\frac{1}{2}$ per Foot.*
 14. *To glaze with Quarries, the Workman finding only Lead, Sodder, and Work, at 3 d. per Foot.*
 15. *Ditto, Workmanship only, from 1 d. $\frac{1}{2}$ to 2 d. per Foot.*
 16. *For taking down of Quarry Glafs, Scowering, Soddering, Banding, and Setting up, from 1 d. $\frac{1}{2}$ to 2 d. per Foot.*
- Note, The Glaziers generally reckon, that 50 Pound of turned Lead, is sufficient for 100 Foot of Quarry Glafs.*

In the *London Evening-Post*, of June, 1732, was the following Advertifement.

THOMAS LOVETT, Glazier, at the Green Lamp, in Red-lion-Street, Holborn,

39. The Shafts of Columns and Pilasters, fluting on *Portland Stone*, Work only, at 1 s. 6 d. per Foot, Facio-work.

40. Carving the Capitals for the *Corinthian* and *Composite* Orders, from 6 s. to 7 s. per Foot, Facio-work, exclusive of the Stone.

Note, *Where in the above Articles and Prices, there is no mention made of the Place where the Work is done at that Rate, it is, because I know of no material Difference between the Prices in London, and at Ipswich, in those Articles.*

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For the better understanding this Method of Measuring, I shall shew an Example or two, both by X Multiplication and Decimals; therefore, supposing a Light of leaded Glass to be 3 Feet 9 Inches long, and 1 Foot 3 Inches wide.

By X Multiplication it is thus,

F. In.	
3 9	The Length.
1 3	The Breadth.
3 9	
9	
2 3	
4 8 3	Content.

But on the *Glaziers Rule*, where the Foot is divided into 100 Parts, you will find the Numbers must stand thus,

3.75	The Length.
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1875	
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By X Multiplication,	Decimally.
F. In. Pts.	
1 2 0 long.	1.17 long.
0 9 3 broad.	.77 broad.
0 9 0	819
0 1 6	819
0 0 3 6	
0 10 9 6	9009 Total of one.
Multiplied by 18 the Number of	Multiplied by 18 The Number of
Squares.	Squares.
Total 16 2 3 0	72072
So that in this Window is 16 Feet, 2	9009
Inches, and a Quarter.	
	16.2162 Total.

N. B. There is at present an Act of Parliament in Force, that lays a Duty upon Glafs; but, as it is expected this Act will be repealed, and the Duty taken off the next Sessions of Parliament, the Prices here stand the same as they were before that Act commenced.

And it is to be observed, that till the said Duty is taken off, about one third more is to be added to the following Prices, except where the Workmanship only is spoke of.

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8. Ditto, with Plate Glafs, Diamond cut, from one to two Foot, at 5 s. per Foot.
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12. Ditto, for Glazing with Squares, Work, Sodder, and Lead only, at 2 d. $\frac{1}{2}$ per Foot.
13. Ditto, Workmanship only, at 1 d. $\frac{1}{2}$ per Foot.
14. To glaze with Quarries, the Workman finding only Lead, Sodder, and Work, at 3 d. per Foot.
15. Ditto, Workmanship only, from 1 d. $\frac{1}{2}$ to 2 d. per Foot.
16. For taking down of Quarry Glafs, Scowering, Soddering, Banding, and Setting up, from 1 d. $\frac{1}{2}$ to 2 d. per Foot.

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In the London Evening-Post, of June, 1732, was the following Advertisement.

THOMAS LOVETT, Glazier, at the Green Lamp, in Red-lion-Street, Holborn,

sells the best Crown Glass for forty Shillings the half Case; likewise the same Preparations by the single Table, and those that have a Mind to have it cut to any Dimensions for 7 d. per Foot; and for the second Sort of Crown Glass, for 6 d. per Foot; also Wainscot Sashes Inch and half thick, ready glazed, for 1 s. per Foot, to any Dimensions. He also sells at 18 s. per Hundred Weight, the famous Chymical Putty, so much approved of, and used at Gentlemens Cuntry-Houses, and for Sky-Lights, that are much exposed to the Weather, which greatly cements itself into the Wood, and neither dries nor crumbles as the common Putty does. N. B. He deals only for ready Money.

SECT. VII. Of PAINTERS Work.

Painters Work is measured in the same Manner as the Joiners, only with this Difference, that instead of accounting the Doors and Window-shutters Work and half, they have double Works as being painted on both Sides; and they also measure all Edges, &c. where the Brush goes.

1. Sash Frames, Sash-Lights, Window-Lights, and Casements, are done at per Piece.
2. Modillion, and other outside Cornice, at per Foot running Measure.
3. Outside Painting, three Times in Oil, is worth, if well done, from 5 d. to 6 d. per Yard. Inside Painting, new Work, of common Colours, at 6 d. per Yard.
4. Inside Painting, old Work, of common Colours, at 4 d. per Yard; but of extraordinary Colours, as
5. Olive Colours, at 8 d. per Yard.
6. Prussian blue, at 10 d. per Yard.
7. Greens at 12 d. per Yard.
8. Sash Frames at 12 d. each.
9. Sash-Lights at 1 d. each.
10. Window-Lights and Casements, at 3 d. each.
11. Iron-bars at 1 d. each, or more, if very large.
12. Modillion Cornice, from 4 d. to 8 d. per Foot, running.
13. Common outside Cornice, 2 d. per Foot, running.

N. B. All Carving in Rooms, and outside Frontispieces to Doors, &c. are so various, that they must be valued by the Time and Materials expended.

Of Colours used in House-Painting.

Painting, if not the chief, is as necessary a Part of Building as any other whatever, both for Use and Ornament, the doing of which well and often, being the surest Way of preserving all the rest; Instances of which may be seen in several Buildings about London, where the Misfortunes of the Builders have prevented them from finishing their Works: For it may be observed, that the Sash-Frames, Sashes, Window-Shutters, Doors, and Door-Cases, for want of Painting, in a very few Years, are so much decayed, that were those Buildings to be made tenantable, most of the outside Timber-Work must be renewed. Iron-work, though of a much stronger Nature than Timber, if not well secured by Painting, is likewise subject to the same Misfortune. On the contrary, where Timber-Work is often painted, it will endure many Ages; no Weather being able to penetrate through it. As to the ornamental Part, there is no Gentleman but must allow, that there is a great Difference between a clean painted Room, and one that hath not been painted, or where the Painting is foul.

I shall be the more particular under this Head, *Of Colours*, Painters Work being very expensive; and this being the only Part in Building, wherein a Gentleman can be assisting, either by himself or Servants; it being almost impossible for any Gentleman to do either Masons, Bricklayers, Carpenters, or Smiths Works: whereas it is well known and daily experienced, since the Advertisement of *Alexander Emerton*, that several Noblemen and Gentlemen have, by themselves and Servants, painted whole Houses, without the Assistance or Direction of a Painter, which, when examined by the best Judges, could not be distinguished from the Work of a professed Painter.

And that which conduces most to this Practice, is the vast Disproportion between the Prices, which Painters charge for their Work, and the Expence which Gentlemen are at in this Method of Painting, which, at the utmost, doth not amount to one fourth Part of the Painter's Price, to prove which, I shall proceed to the Prices of Colours, and likewise shew what Number of Yards, one Pound of each Colour will paint.

First Primer, ground in Oil, at 36 s. per 112 Pound Weight, or 4 d. per Pound. One Pound of which will paint 20 square Yards.

Second Primer, ground in Oil, at 36 s. per 112 Pound, or 4 d. per Pound. One Pound of which will paint 12 square Yards.

Best white Lead, ground in Oil, at 36 s. per 112 Pound, or 4 d. per Pound.

One Pound of which, with two-Pennyworth of Oil, will paint 8 square Yards; which is three Farthings per Yard, for which Painters usually charge 4 d. per Yard.

Pearl Colour, ground in Oil, at 4 d. and 5 d. per Pound.

Lead Colour, ground in Oil, at 4 d. and 5 d. per Pound.

Cream Colour, ground in Oil, at 4 d. and 5 d. per Pound.

Stone Colour, ground in Oil, at 4 d. and 5 d. per Pound.

Wainscot, or Oak Colour, ground in Oil, at 4 d. and 5 d. per Pound.

One Pound of any of these Colours, with Oil, will paint 8 square Yards, for which Painters usually charge 4 d. per Yard.

Chocolate Colour ground in Oil, at 6 d. per Pound.

Mahogany Colour, ground in Oil, at 6 d. per Pound.

Cedar Colour, ground in Oil, at 6 d. per Pound.

Walnut-tree Colour, ground in Oil, at 6 d. per Pound.

One Pound of any of these Colours, with Oil, will paint 10 square Yards, for some of which Painters usually charge 4 d. per Yard, for others more.

Gold Colour, ground in Oil, at 8 d. per Pound.

Olive Colour, ground in Oil, from 8 d. to 12 d. per Pound.

Pea Colour, ground in Oil, from 8 d. to 12 d. per Pound.

Fine Sky Blue mixed with *Prussian Blue*, ground in Oil, from 8 d. to 12 d. per Pound.

Orange Colour, ground in Oil, at 12 d. per Pound.

Lemon Colour, ground in Oil, at 12 d. per Pound.

Straw Colour, ground in Oil, at 12 d. per Pound.

Pink Colour, ground in Oil, at 12 d. per Pound.

Blossom Colour, ground in Oil, at 12 d. per Pound.

One Pound of any of these Colours, with Oil, will paint 8 square Yards, for some of which Painters usually charge 10 d. or 12 d. per Yard, for others they will expect more.

Fine deep Green, ground in Oil, at 2 s. 6 d. per Pound.

One Pound of which, with Oil, will paint 20 square Yards, for which Painters usually charge 12 d. per Yard.

Oils used in House-painting, are
Linseed-Oil, at 10 d. per Quart.

Turpentine

Turpentine-oil, at 12*d.* per Quart.

Best drying Oil, at 12*d.* per Quart.

Painting Brushes of several Sizes, from 2*d.* to 6*d.* each.

Putty at 4*d.* per Pound.

Double Size used by Painters for priming new Work, at 4*s.* per Firkin, or 2*d.* per Quart.

Single Size, at 18*d.* per Firkin, or 1*d.* per Quart.

These Colours, with all other Materials used in Painting, are prepared in the best Manner, and sold by the Widow *Emerton*, at the *Bell*, over-against *Arundel-street*, near *St. Clement's Church* in the *Strand*, *London*. She likewise gives printed Directions for the using her Colours, or procures Painters to work for Gentlemen by the Day.

SECT. VIII. Of PLUMBERS Work.

PLUMBERS Work is usually done by Weight, viz. the great Hundred or 112 Pound. And it is usual with the Plumbers to cast their Sheet-Lead of various Thicknesses for covering of Flats, Roofs, Guttering, &c. there is generally allowed from 7 to 12 Pound to the Foot, superficial.

1. All Sheet-Lead, either cast or milled, Sodder and Labour included, at 20*s.* per Hundred.

2. Ditto, exclusive of Sodder and Labour, at 18*s.* per Hundred.

3. All Rain-water Pipes, Rain-water Cisterns, battened Cisterns, Lead-pumps, Sodder and Labour included, at 1*l.* 2*s.* per Hundred.

4. All Water Pipes, from three Quarters, to 7 Inches Bore, Labour and Sodder included, at 1*l.* per Hundred.

5. Soddering the Joints of Water-pipes for three Quarters Bore, at 2*s.* 6*d.* per Joint.

6. Ditto, for 1 Inch, at 3*s.*

7. Ditto, for 1 Inch and a half, 3*s.* 6*d.*

8. Ditto, for 2 Inches, 4*s.* 6*d.*

9. Ditto, for 2 Inches and half, 5*s.* 6*d.*

10. Ditto, for 3 Inches, 7*s.*

11. Ditto, for 3 Inches and half, 8*s.* 6*d.*

12. Ditto, for 4 Inches, 10*s.*

13. Ditto, for 4 Inches and half, 11*s.*

14. Ditto, for 5 Inches, 12*s.* 6*d.*

15. Ditto, for 5 Inches and half, 14*s.*

16. Ditto, for 6 Inches, 16*s.*

17. Ditto, for 6 Inches and half, 19*s.*

18. Ditto, for 7 Inches, 1*l.* 1*s.*

19. Sash Weights and other Things of the like Nature, at 18*s.* per Hundred.

20. Sodder, at 8*d.* per Pound.

21. Brass Cocks and Bosses, from 3 Inches to Inch and quarter Diameter, at 1*s.* 3*d.* per Pound.

22. Brass Cocks and Bosses; Sodder, Labour, setting on, and all Charges included, if Inch and half Diameter, at 7*s.* 6*d.* each.

23. Ditto, Inch and quarter, 5*s.* 6*d.*

24. Ditto, Inch, 4*s.* 6*d.*

25. Ditto, 3 Quarters, 3*s.* 6*d.*

26. Ditto, half Inch, 3*s.*

27. Ditto, If not Bosses, deduct from the small ones 4*d.* the middle Size 6*d.* and the largest 8*d.* each.

28. Stop-Cocks, at 1*s.* 3*d.* per Pound.

29. Ditto, with setting on, Sodder, Labour, &c. included, Inch and half Diameter, at 8*s.* 6*d.* each.

30. Ditto, Inch and quarter, 7*s.*

31. Ditto, Inch, 5*s.* 6*d.*

32. Ditto, 3 Quarters, 4*s.* 6*d.*

33. Ditto, half Inch, 3*s.* 6*d.*

34. Ball-Cocks, the Ball 6 Inches in Diameter, the Cocks one Inch, at 12*s.* each.

35. Ditto, 5 Inches three quarters Diameter, 9*s.*

36. Ditto, 4 Inches and half Diameter, 6*s.*

37. To allow for all old Lead, 14*s.* per Hundred.

Note,

Note, It is usual, as I have observed, to cast Sheet-lead of various Thicknesses, for guttering, laying of Flats, covering of Roofs, &c. viz. from 7 to 12 Pound the Foot Square; I shall therefore exhibit the following Table, which will readily shew the Value of a Foot square of Sheet-lead when cast to any of the above-mentioned Thicknesses, and according to the above Prices at *London* and *Ipswich*, per Hundred; by which it will be very easy to calculate the Expence of covering any Place with Sheet-lead of any Thickness, by only measuring the Superficies of the Place to be covered, and determining on the Thickness of the Lead.

The T A B L E.

Pound to a Foot, s. d.		s. d.	
Lead at	7	{ in <i>London</i> , at the Rate of 18 s. per Hundred, is worth	{ 1 1 $\frac{1}{2}$ }
	8		{ 1 3 $\frac{1}{4}$ }
	9		{ 1 5 $\frac{1}{4}$ }
	10		{ 1 7 $\frac{1}{4}$ }
	11		{ 1 9 }
	12		{ 1 11 }
} per Foot.			
{	<i>Ditto</i> , in	{	{ 1 3 }
	<i>Ipswich</i> ,		{ 1 5 }
	at the Rate		{ 1 7 $\frac{1}{4}$ }
	of 20 s. per		{ 1 9 $\frac{1}{4}$ }
	Hundred,		{ 1 11 $\frac{1}{2}$ }
	is worth		{ 2 2 $\frac{1}{2}$ }
} per Foot.			

I shall also exhibit the Weight and Prices of Leaden-pipes of different Sizes, as calculated for a Person of Quality, by Mr. *Stephen Switzer*, and set down in his System of *Hydrostaticks* and *Hydraulics*, Vol. I. Page 123.

Says this Author, it will be to little Purpose, for me to urge that Pipes are dearer and cheaper, in Proportion to their Dimensions and Thicknesses, and consequently to the Price of Lead, and the Allowance in Weight that is made to every Foot or Yard: But the following is a Calculation made for a Person of Quality, by whom I had the Honour to be employed, and where Lead, Casting and all, is reckoned at 22 s. per Hundred.

Inches Bore. Pound Weight.

To a Yard of { 3 $\frac{1}{4}$ } there is { 45 } and is worth { 9 }
 Pipe of { 2 $\frac{3}{4}$ } allowed { 40 } from { 8 }
 { 2 $\frac{1}{2}$ } { 36 } { 7 }
 { 2 } { 30 } { 6 } to { 10 }
 { 9 } per Yard.

This Author further observes, that to the three first of the above-mentioned Pipes, it would not be amiss to add five Pounds more to every Yard; and that these Prices are calculated when Lead is worth from 22 s. to 25 s. per Hundred Weight, allowing for Waste.

Note, The Legislature have enjoined, that the Water falling from the Tops of the Houses, [in and about the Cities of *London* and *Westminster*, or other Parishes or Places comprised within the weekly Bills of Mortality, or within the Parishes of *Mary-le-Bone*, *Paddington*, *Chelsea*, and *Pancras*, or either of them, in the County of *Middlesex* (except Houses on *London Bridge*, and on the River *Thames* below *Bridge*) that should be built, after the *Twenty-fourth Day of June, One Thousand Seven-hundred and Twenty-five*,] and the Water falling from the Balconies and Pent-houses thereof, should be conveyed into the Channels by Party-pipes on the Sides or Fronts of the said Houses, on Pain that the Owner or Owners offending herein, should, for every Offence, forfeit the Sum of *Ten Pounds*, to be recovered by Action of Debt, or on the Case, Bill, Plaint, or Information in any of his Majesty's Courts of

Record at *Westminster*, wherein no *Essoign*, *Protection*, *Privilege*, or *Wager of Law*, or more than one *Imparance* shall be allowed.

N. B. That there are some Men of this, as well as of all other Professions, that will sell for less Profit than others; the following Advertisement is a Proof.

Whereas it hath been the Practice of many Plumbers to charge an extravagant Price for *Leaden-pipes* (to the great Discouragement of Gentlemen) they not being satisfied under *Thirty per Cent Profit*: To prevent which Imposition for the future, *JOHN HEYSHAM*, Plumber in *Eaton*, near *Windsor*, makes and sells *Leaden-pipes* of all Sizes, viz. *Common-pipe*, three Quarters of an Inch Bore, at 1 s. 8 d. per Yard, the Yard weighing 10 Pound. One Inch Bore at 2 s. per Yard, weighing 12 Pound per Yard. Inch and quarter Bore, at 2 s. 8 d. weighing 16 Pound per Yard. Inch and half Bore, at 3 s. per Yard, weighing 18 Pound per Yard. Inch and three quarters Bore, at 3 s. 6 d. per Yard, weighing 21 Pound per Yard. Two Inch Bore, at 4 s. per Yard, weighing 24 Pound per Yard, or 18 s. and 8 d. per Hundred.

SECT. IX. Of PAVIMENTS Work.

PAVIMENTS Work is measured by the Yard square, of 3 Feet each Way.

For the understanding of how many paving Tiles, Bricks, &c. will pave a Cellar, Vault, &c. Observe,

That $\left\{ \begin{array}{l} 36 \\ 20\frac{1}{4} \\ 16 \\ 13 \\ 9 \end{array} \right\}$ Tiles. $\left\{ \begin{array}{l} 6 \\ 8 \\ 9 \\ 10 \\ 12 \end{array} \right\}$ Inches square, will be sufficient to pave a Yard square.

The PRICES.

1. **N**EW Pebble Paving, not less than 14 Inches deep, finding Materials and Work, at 3 s. 6 d. per Yard. The Pebbles in each such Yard, ought to be 3 Hundred Weight.
2. Ditto, 15 Inches deep, finding Materials and Work, at 4 s. per Yard. The Pebbles in each such Yard ought to be 4 Hundred Weight.
3. Ditto, from 16 Inches to 18 Inches deep, finding Materials and Work, at 4 s. 6 d. per Yard. The Pebbles in each such Yard, ought to be 5 Hundred Weight.
4. New *Purbeck* square Paving, 6 Inches thick, at 5 s. 6 d. per Yard.
5. Ditto, if of the hard blue Sort, at 6 s. per Yard.
6. New *Flanders* Brick-paving, in *London*, at 3 s. 6 d. per Yard square.
7. Ditto, Workmanship only, at 5 d. per Yard.
8. New *Purbeck* square Paving, 4 Inches thick, at 4 s. 6 d. per Yard.
9. Ditto, Workmanship only, Gravel included, at 6 d. per Yard.
10. Paving with *Kentish* Squares, at 4 s. 6 d. per Yard.
11. Paving with Ragg, at 1 s. 8 d. per Yard.
12. Ditto, old Work, at 8 d. per Yard.
13. New Ragg Paving or Bowlers, at 2 s. 6 d. per Yard.
14. Paving with red Bricks, in *Ipswich*, at 1 s. per Yard.
15. Ditto, Workmanship only, at 5 d. per Yard.
16. White Brick Paving, at 1 s. 6 d. per Yard.
17. Paving with Clinkers, at 2 s. 4 d. per Yard.
18. Nine Inch *Pammant*-pavement, at 2 s. 6 d. per Yard.

19. Free-Stone Paving, with Stones of promiscuous Lengths and Breadths, at 3 s. per Yard.

20. White Marble, veined with red, &c. in Squares, at 5 s. per Foot.

21. Portland Stone Paving, fit for Halls, at 1 s. 6 d. per Foot.

22. Paving with nine Inch Pammants, at 2 s. 6 d. per Yard.

23. Ditto, Workmanship only, at 6 d. per Yard.

N. B. See more of Paving under MASONS-WORK.

Note, The above Prices are calculated from the Materials, being at the following Rates; therefore when, or where they are sold for more or less, you must make a suitable Allowance.

24. Pebbles at 20 s. per Ton.

25. Gravel at 2 s. 4 d. per Load.

26. Raggs at 10 s. per Ton.

27. Flanders Bricks at 20 s. per Thousand.

SECT. X. Of BLACKSMITHS Work.

Blacksmiths Work is done by the Pound Weight.

1. Casements for Windows, Cross Window Bars, filed, and Work of the like Nature, at 4 d. $\frac{1}{2}$ per Pound.

2. Iron Doors and Shutters at 10 d. per Pound.

3. New Keys to Locks, from 1 s. to 2 s. each.

4. All hammered Work, as Chimney Bars, Stays, upright Window Bars, Iron Fenders, Shutter Bars, Pump Work, Bolts, Saddle Bars, Cramps, Holdfasts, Wall-hooks, Gudgeons, Hoops, and all black Work of the same Nature, at 3 d. $\frac{1}{2}$ per Pound.

5. Pins, Hoops, Chains, Hooks, &c. to Stable Bails, at 4 d. per Pound.

Here follows an exact Account of such Nails, Locks, Hinges, and Tools, and their Prices, as are used in Building, which I have obtained with great Pains and Expence, from the *Respective* SMITHS, and therefore it may be depended upon, which nothing of this Kind hitherto published can be.

Of NAILS.

The GENERAL Sorts are

Bill Brads, Gunners Brads, Plain Brads.

Dye Hobbs, Rose Hobbs, Skidder Hobbs, Thick Hobbs, Clasp Hobbs.

Lead Nails, Draw Nails, Desk Nails, Rose Nails, Flat-Head Nails, Flat-Point Nails, Scupper Nails, Sharp Nails, Middle Nails, Prigg Nails, Square Nails, Spike Nails.

N. B. All the above Sorts are sold by the 1000, and (including them all) they are from 8 d. to 12 s. per 1000.

Such of them as weigh per 1000-	Weight.		Price.		Such of them as weigh per 1000-	Weight.		Price.	
	lb.	oz.	s.	d.		lb.	oz.	s.	d.
	0	2 $\frac{1}{4}$	0	8 $\frac{1}{4}$		1	0	0	11 $\frac{1}{2}$
	0	5	0	8 $\frac{1}{4}$		1	8	1	11 $\frac{1}{4}$
	0	6	0	8 $\frac{1}{2}$		1	12	1	11 $\frac{1}{2}$
	0	7	0	9 $\frac{1}{4}$		1	14	1	2 $\frac{1}{4}$
	0	9	0	9 $\frac{1}{2}$		2	0	1	2 $\frac{1}{4}$
	0	14	0	11 $\frac{1}{4}$					
				K 2					Such

Of Blacksmiths Work.

Such of them as weigh per 1000-	Weight. lb. oz.	Price. s. d.
	2 8	1 4 $\frac{3}{4}$
	2 14	1 6 $\frac{3}{4}$
	3 0	1 7 $\frac{1}{4}$
	3 8	1 8 $\frac{1}{2}$
	3 12	1 10
	4 4	1 11 $\frac{1}{4}$
	4 12	2 1
	5 0	2 3
	5 4	2 3 $\frac{1}{4}$
	5 8	2 4
	6 0	2 7
	6 12	2 8 $\frac{1}{2}$
	7 0	2 9 $\frac{1}{2}$
	7 8	2 11 $\frac{1}{2}$
	8 0	3 0 $\frac{1}{2}$
	9 0	3 3
	10 0	3 6
	12 0	4 1
	13 0	4 6
	15 0	5 0
	16 0	5 3
	18 0	5 10
	19 0	6 2
	20 0	6 5
	21 0	6 8
	23 0	7 3
	24 0	7 9
	26 0	8 2
	27 0	8 6
	30 0	9 2
	32 0	9 9
	36 0	11 0
	40 0	12 6

Flat-Pointed Nails are sold by the Hundred Weight.

		Price per 1000 wt.		
Name		l.	s.	d.
24 d.		1	11	0
30 d.		1	10	0
40 d.		1	9	6
4 s.		1	9	0
5 s.		1	9	0
6 s.		1	9	0

The OTHER Sorts of Nails, viz.

Batten Brads are sold by the 1000.

		Price.		Weight.	
		s.	d.	lb.	oz.
Price per 1000-		0	8 $\frac{1}{2}$	0	8
		0	11	0	14
		0	11 $\frac{3}{4}$	1	0
		1	3 $\frac{1}{4}$	1	12
		1	4	2	0
		1	9 $\frac{1}{2}$	2	12
		1	10	2	14
		1	11	3	0
		2	4	4	0
		2	10	5	0

Clout Nails are sold by the 1000.

		Price.		Weight.	
		s.	d.	lb.	oz.
Price per 1000-		2	1 $\frac{1}{4}$	4	8
		2	10	7	0
Clout Brads at		3	6	9	0

Pound Nails are sold by the Hundred Weight.

		Price per 100 wt.		
		l.	s.	d.
Name 14 Pound		1	15	6
20 Pound		1	15	0
34 Pound		1	14	6
44 Pound		1	13	6
54 Pound		1	12	0

Dog Nails are sold by the 1000.

		Price.		Weight.	
		s.	d.	lb.	oz.
Price per 1000-		3	9	9	0
		4	9	12	0
		5	9	16	0

N. B. That there are other larger Sizes, viz. from 20 Pound to 100 Pound Weight, per 1000, and are all sold at 4 d. or 4 d. $\frac{1}{4}$ per Pound.

Jobans

Of Blacksmiths Work.

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Jobent Nails are sold by the 1000.

	Price.		Weight.	
	s.	d.	lb.	oz.
Price per 1000-	0	10½	0	14
	0	11½	1	0
	1	2½	1	14
	1	3	2	0
	1	6½	3	0

Ribbing Nails, there are several Sorts of, viz. from 5 to 10 Inches, and are sold at 27 s. per 100 Weight.

Round-Head Nails are sold by the 1000.

	Price.		Weight.	
	s.	d.	lb.	oz.
Price per 1000-	0	11½	0	13
	1	0½	1	0
	1	3	1	10

Price per 1000-

Price.		Weight.	
s.	d.	lb.	oz.
1	4½	2	0
1	11	3	4
2	8½	5	0
3	3	7	0
4	3	10	4
5	5	13	6

Glaziers Sprigs are sold by the 1000.

	Price.		Weight.	
	s.	d.	lb.	oz.
Price per 1000-	0	7½	0	3
	0	8½	0	14
	0	8¾	1	0

Timber Nails are of several Sorts, viz. from 6 to 15 or 16 Inches, and are at 30 s. per 100 Weight.

Joiners Rivets are sold by the Pound, viz. those of an Inch at 4½ d; Inch and ½ at 4½ d; 2 Inches at 4½ d; 3 Inches at 4½ d; 3 Inches at 4 d.

Casement Hooks are sold by the Gros, viz. those that weigh 53 Pound per 1000, at 2 s 9 d; those that weigh 70 Pound per 1000, at 3 s. 6 d.

Tenter Hooks are sold by the 1000, viz. those that weigh 1 Pound, at 1 s. 4 d; 1 Pound 8 Ounces, at 1 s 6 d; 3 Pound 8 Ounces, at 2 s 3 d; 5 Pound 8 Ounces, at 3 s; 10 Pound, at 4 s 6 d; 18 Pound 8 Ounces, at 7 s 6 d; and those of 39 Pound 8 Ounces, at 15 s 6 d.

Curtain Hooks are sold by the Gros, viz. weighing 21 Pound at 1 s.

HL Hinges, the best are sold per Pair, viz. those of 6 Inches, at 9 d; 7 Inches, at 10 d; 8 Inches, at 1 s 2 d; 9 Inches, at 1 s 3 d; 10 Inches, at 1 s 6 d; 11 Inches, at 2 s; 12 Inches, at 2 s 10 d. per Pair.

N. B. There are larger Sizes, which are sold at 10 d per Pound.

HL with rising Joints are sold per Pair, viz. those of 7 Inches, at 1 s 3 d; 8 Inches, at 1 s 5 d; 9 Inches, at 1 s 10 d; 10 Inches, at 2 s; 11 Inches, at 3 s; 12 Inches, at 3 s 10 d per Pair.

Pew Hinges are sold per Dozen, viz. those of 6 Inches, at 9 s 9 d; 7 Inches, at 13 s; 8 Inches, at 17 s 6 d; 9 Inches, at 20 s 6 d; 10 Inches, at 26 s per Dozen.

Shutter Hinges are sold by the Dozen, viz. those of 6 Inches, at 7 s 6 d; 7 Inches, at 10 s 6 d; 8 Inches, at 12 s; 9 Inches, at 16 s 9 d per Dozen.

Side Hinges are sold by the Dozen, viz. those of 5 Inches, at 5 s; 6 Inches, at 6 s; 7 Inches, at 8 s 9 d; 8 Inches, at 10 s 6 d; 9 Inches, at 12 s 9 d; and 10 Inches, at 13 s 6 d per Dozen.

Dove-tailed Hinges, the best are sold by the Pair, viz. those of 3 Inches, at 3 s; 3 Inches and a half, at 4 s; 4 Inches at 4 s 6 d; 4 Inches and a half, at 5 s 6 d; 5 Inches at 5 s 9 d per Pair.

Black Hinges, Chest Hinges, Chest Hasps, Hooks and Hinges, Scuttle Hinges, Strap Hinges.

N. B. All

N. B. All these Sorts are sold by the Dozen, and are from 3 s 6 d to 11 s per Dozen, viz. at 3 s 6 d; at 4 s 6 d; at 5 s 3 d; at 6 s 3 d; at 7 s 9 d; at 8 s 6 d; and at 11 s per Dozen.

X Garnet-Hinges with rising Joints, are sold by the Dozen, and are from 6 s 9 d, to 16 s per Dozen, viz. 6 s 9 d, at 9 s, at 10 s 6 d, at 13 s 6 d, and at 16 s 6 d per Dozen.

X Garnet and Scuttle Hinges that are weighty, are sold at 33 s per Hundred Weight.

X Garnet Hinges, filed Joints, are sold at 38 s per hundred Weight.

Hinges with Hooks, are sold at 30 s per hundred Weight.

N. B. Sometimes they have Stay-hooks, and then they are 2 s or 2 s 3 d per Hundred more.

The cheaper Sort of Hinges are Lancashire Hinges, Balcony Hinges, Chest Hinges, Dove-tail'd Hinges, X Garnet Hinges, and Side Hinges.

N. B. These Sorts are sold by the Dozen; the Prices are from 13 d to 31 s per Dozen, viz. at 1 s 1 d, at 1 s 3 d, at 1 s 6 d, at 2 s 6 d, at 3 s 3 d, at 4 s 3 d, at 5 s, at 8 s 3 d, at 10 s 6 d, at 12 s 6 d, at 14 s 3 d, at 16 s, at 17 s 6 d, at 20 s, at 25 s, and at 31 s per Dozen.

Smooth-filed Hinges, viz. Balcony Hinges, Box Hinges, Chest Hinges, Clock-Cafe Hinges, Desk Hinges, Pew Hinges, Shutter Hinges, Side Hinges.

N. B. Of these Hinges there are several Sorts, and are sold by the Dozen, viz. at 1 s 8 d, at 1 s 10 d, at 1 s 11 d, at 2 s 2 d, at 2 s 6 d, at 3 s, at 3 s 6 d, at 4 s at 4 s 6 d, at 5 s 6 d, at 7 s, at 9 s 6 d, at 10 s, at 11 s, at 14 s, at 16 s 6 d, at 20 s 6 d, at 22 s 6 d, at 24 s, at 26 s, at 30 s 6 d, at 35 s, and at 43 s 6 d per Dozen.

Smooth-filed Hinges, some are sold by the Pair. viz. at 4 s, at 5 s, at 5 s 6 d, at 6 s, and at 7 s 6 d per Pair.

Holdfasts and Wall-hooks are sold at 33 s per Hundred Weight.

Ditto, for Joiners, are sold at 4 $\frac{1}{2}$ d per Pound.

Hooks and Eyes for Gates, are sold at 3 $\frac{1}{2}$ d, or 3 $\frac{3}{4}$ d per Pound.

Long-tinned Latchets are sold by the Dozen, viz. the 1st Sort at 2 s 6 d, the 2d Sort at 2 s 8 d, the 3d Sort at 3 s 6 d, the 4th Sort at 4 s, the 5th Sort at 4 s 6 d, the 6th Sort at 6 s 6 d, the 7th Sort at 7 s, and the 8th Sort at 8 s per Dozen.

Varnish Latches are sold by the Dozen, viz. the 1st Sort at 2 s 7 d, the 2d Sort at 3 s, the 3d Sort at 4 s, the 4th Sort at 6 s 3 d, and the 5th Sort at 8 s 3 d per Dozen.

Spring and Thumb Latches are sold by the Dozen, viz. the 1st Sort at 3 s 7 d, the 2d Sort at 4 s 3 d, the 3d Sort at 4 s 9 d, the 4th Sort at 5 s 6 d, the 5th Sort at 7 s, the 6th Sort at 8 s 4 d, the 7th Sort at 9 s 3 d, the 8th Sort at 12 s, and the 9th Sort at 14 s 9 d per Dozen.

Latches with brass Knobs, are sold by the Dozen, viz. the 1st Sort at 14 s, the 2d Sort at 16 s, and the 3d Sort at 18 s per Dozen.

Rimmed Latches are of sundry Sizes.

N. B. Of these some are Iron-cased, some Brass-cased, and some Sliding-cased, and are sold single; and are from 2 s to 15 s each, viz. at 2 s, at 2 s 3 d, at 2 s 4 d, at 3 s, at 3 s 6 d, at 4 s 4 d, at 4 s 7 d, at 5 s 6 d, at 6 s 6 d, at 8 s 6 d, at 9 s, at 10 s, at 12 s 6 d, at 13 s 6 d, and at 15 s 6 d each.

D Gate Locks, if 2 Wards, 3 Wards, *steel Wards*, *slit Key*, or *letter Key*, are sold by the Dozen, viz. at 2 s 9 d, at 2 s 10 d, at 3 s, at 3 s 4 d, at 3 s 6 d, at 4 s 3 d, at 4 s 6 d, at 5 s 6 d, at 7 s, at 7 s 6 d, at 8 s 6 d, at 9 s, at 11 s, and at 14 s 6 d per Dozen.

Hanging Locks, *Pad Locks*, *Slit-key'd Locks*, are sold by the Dozen, viz. at 3 s 6 d, at 4 s 6 d, at 4 s 8 d, at 5 s 6 d, at 7 s, at 8 s 3 d, at 9 s 3 d, at 10 s 9 d, at 12 s 6 d, at 14 s 9 d, and at 16 s 6 d per Dozen.

Bridged and secret Padlocks, some are sold by the Dozen, viz. at 9 s 6 d, at 11 s 6 d, at 14 s, and at 16 s 6 d per Dozen.

Some are sold *singly*, viz. at 1 s 8 d, at 1 s 10 d, at 3 s 3 d, at 2 s 6 d, at 2 s 9 d, at 3 s 6 d, at 4 s, and at 5 s 9 d each.

Cabinet Locks, *Box Locks*, *Cupboard Locks*, and *Till Locks* (whether in Suit or not are sold per Dozen, viz. at 3 s 9 d, at 3 s 10 d, at 4 s 3 d, at 4 s 6 d, at 5 s 6 d, at 7 s, at 8 s, at 9 s 6 d, at 10 s 6 d, at 11 s, and to 16 s 6 d per Dozen.

Cabinet Locks, *Till Locks*, *Scrutore Locks*, in Suit *five Locks* and *one Key*, the Price per Suit, is 2 s 6 d, 2 s 9 d, 3 s, 3 s 6 d, 4 s 6 d, 5 s 4 d, and 7 s 6 d per Suit.

N. B. *There are higher Priced ones, but not of common Use.*

Of *inside Locks* for *Chests*, *Desks*, *Tills*, *Cupboards* and *Boxes*, there are sundry Sorts, viz. X Keys, X Ward, XX Wards, XX and *Bullet Wards*, S. Bitted, &c. which are sold by the Dozen, viz. at 3 s 4 d, at 3 s 10 d, at 4 s 2 d, at 4 s 6 d, at 4 s 9 d, at 5 s 6 d, at 5 s 9 d, at 6 s, at 7 s 6 d, at 8 s, at 9 s 6 d, at 11 s 6 d, at 12 s 6 d, at 14 s 6 d, at 16 s 6 d, at 20 s, at 22 s 6 d, at 27 s, at 30 s, and at 37 s 6 d per Dozen.

Ditto, not sold in *Dozens*, viz. at 2 s 3 d, at 3 s, at 3 s 6 d, at 4 s 6 d, at 5 s, at 6 s 6 d, at 7 s, at 9 s, and at 11 s each.

Plate Closet-locks are sold by the Dozen, viz. at 11 s 6 d, at 12 s 6 d, at 14 s 6 d, at 16 s, and at 20 s per Dozen.

Plated Closet-locks, with *double Screws*, are sold *singly*, viz. at 1 s 6 d, at 1 s 8 d, at 1 s 10 d, at 2 s 6 d, at 2 s 9 d, and at 3 s 6 d each.

Plate-closet Locks, with *double Springs*, are sold *singly*, viz. at 12 s 6 d, at 15 s, and at 17 s each.

Ditto, with *single Springs*, sold *single*, viz. at 6 s 6 d, at 7 s 6 d, at 8 s 6 d, and at 9 s each.

Bastard-Banbury Stock-locks are sold by the Dozen, viz. at 6 s, at 7 s, at 8 s, and at 9 s per Dozen.

Livery Stock-locks are sold by the Dozen, viz. at 7 s, at 8 s 6 d, at 9 s 6 d, at 10 s 6 d, at 14 s 6 d, at 16 s 6 d, at 21 s, at 23 s, and at 25 s per Dozen.

Plate Stock-locks are sold by the Dozen, viz. at 8 s 6 d, 9 s, at 11 s 6 d, at 12 s 6 d, at 13 s, at 14 s 6 d, at 15 s, at 16 s 6 d, and to 26 s per Dozen.

Spring Stock-locks twice dead and Spring, are sold *singly*, viz. at 2 s 3 d, at 2 s 5 d, at 2 s 9 d, at 3 s 6 d, at 4 s 6 d, at 5 s 9 d, at 7 s 6 d, at 8 s, and at 10 s each.

Spring Stock-locks, twice dead, are sold in *Suit*, viz. at 11 s 6 d, at 14 s, at 16 s 6 d, at 20 s, at 22 s 6 d, at 25 s, at 26 s, at 33 s, and at 40 s per Suit.

Balcony Bolts, some are sold by the Dozen, viz. at 6 s, at 7 s 6 d, at 9 s, at 12 s, at 15 s 6 d, at 18 s, at 22 s 6 d, at 25 s, at 26 s, and at 29 s per Dozen.

Some *Balcony Bolts* are sold by the Pair, viz. at 3 s 3 d, at 3 s 9 d, at 4 s 9 d, at 5 s 3 d, at 5 s 6 d, at 7 s, at 9 s 6 d, and at 12 s 6 d per Pair.

Spring

Spring Bolts and Sash Bolts, are sold by the Dozen, viz. at 1 s 6 d, at 1 s 9 d, at 2 s 3 d, at 2 s 6 d, at 2 s 9 d, at 3 s 6 d, at 4 s 6 d, at 4 s 9 d, at 5 s 6 d, at 6 s 6 d, and at 10 s per Dozen.

Shutter Bolts are sold by the Dozen, viz. at 10 s 6 d, at 12 s 6 d, at 14 s, at 16 s 6 d, and at 18 s 6 d per Dozen.

WORKMENS TOOLS. *Adzes* are sold at 20 d and 2 s a-piece, according to the Size.

Augers are sold singly, viz. those of $\frac{1}{2}$ Inch, at 1 s; $\frac{3}{4}$ Inch, at 1 s 2 d; $\frac{1}{2}$ Inch, at 1 s 3 d; Inch, 1 s 6 d; Inch $\frac{1}{4}$, at 1 s 9 d; Inch $\frac{1}{2}$, 2 s 2 d; Inch $\frac{3}{4}$, at 2 s 6 d; Inch $\frac{1}{2}$, at 2 s 9 d; Inch $\frac{3}{4}$, at 3 s 3 d; and those of 2 Inches, at 4 s 3 d. each.

Brick Axes are sold at 2 s 6 d, or 3 s each, according to the Size.

Felling Axes are sold singly, viz. No. 1 at 1 s 6 d; No. 2 at 1 s 7; No. 3 at 2 s; No. 4 at 2 s 2 d each.

House Axes are sold singly, viz. at 2 s 6 d; at 3 s; 3 s 4 d; and at 3 s 9 d each.

Lopping Axes are usually sold by the Dozen, viz. No. 1 at 17 s 6 d; No. 2 at 18 s 6 d; No. 3 at 23 s; No. 4. at 25 s per Dozen.

Chizels, Firmers, and Gouges SHOULDERED, are usually sold by the Dozen, viz. those of an Inch or under at 21 d per Dozen. Those from an Inch to an Inch and a half, at 2 s 2 d per Dozen. Those from an Inch and a half to two Inches, at 2 s 9 d. Ditto long, at 4 s 6 d per Dozen. Mortice Chizels at 4 s 6 d per Dozen. Paring Chizels are 7 s 6 d, or 8 s per Dozen. The 2d Sort are 8 s 6 d or 9 s per Dozen. Broad Chizels are 7 s 6 d, or 8 s per Dozen. Heading Chizels $\frac{1}{2}$ Inch, at 4 s 6 d; $\frac{3}{4}$ Inch, 6 s 6 d; Inch ditto. Scribing-Chizel are 5 s 6 d per Dozen. Turning Chizels and Gouges are 6 s per Dozen.

Socket Gouges are 5 s 6 d per Dozen.

Compasses, of these there are 6 or 7 Sizes, and are sold from 20 d to 3 s 6 d per Dozen.

Compasses, with *steel Sweeps*, are sold by the Pair, viz. those of 12 Inches, at 2 s 4 d. 13 Inches at 3 s, 14 Inches at 3 s 3 d, and those of 15 Inches at 3 s 4 d per Pair.

Timber Dogs are sold at 20 s per hundred Weight.

Gimblets are sold by the Dozen, viz. at 6 d, at 7 d, at 8 d, at 9 d, at 10 d, at 11 d, at 1 s, at 1 s 3 d, at 1 s 4 d, at 1 s 6 d, at 1 s 9 d, at 2 s, at 2 s 6 d, at 3 s, at 3 s 6 d, at 4 s 6 d, and at 6 s per Dozen.

Claw Hammers are sold by the Dozen, viz. at 2 s 9 d, at 3 s 9 d, at 4 s, at 4 s 6 d, at 5 s 6 d, at 7 s, and at 8 s per Dozen.

Welded cheek Hammers are sold by the Dozen, viz. at 11 s, 6 d, at 12 s 6 d, at 14 s, and at 16 s 6 d per Dozen.

Lathing Hammers are sold by the Dozen, viz. at 10 s 6 d, at 12 s 6 d, at 14 s 6 d, and at 15 s 6 d per Dozen.

Round poled Hatchets are sold by the Dozen at 6 s 6 d, at 7 s 6 d, at 8 s 6 d, and at 10 s 6 d per Dozen.

Square-poled Hatchets are sold by the Dozen, viz. at 8 s 9 d, at 10 s, at 14 s 6 d, and at 16 s 6 d per Dozen.

Joiners Hatchets are sold from 18 s to 21 s per Dozen.

Pincers for *Joiners, Farriers, and Shoemakers*, are sold by the Dozen, viz. at 4 s 6 d, at 5 s 6 d, at 7 s 6 d, at 8 s 6 d, at 11 s 6 d, at 13 s 6 d, at 16 s, at 21 s, at 27 s 6 d, at 36 s, and at 45 s per Dozen.

Compass-

Compass Steel-saws are sold by the Dozen, viz. those of 12 Inches, at 8 s 3 d, 15 Inches at 10 s 6 d per Dozen.

Grafting Saws are sold by the Dozen, viz. those of 10 Inches, at 9 s 6 d, 12 Inches at 12 s 6 d, 14 Inches at 14 s 6 d, 16 Inches at 16 s, and those of 18 Inches at 18 s per Dozen.

Hand and Pannel Saws are sold by the Dozen, viz. those of 20 Inches at 22 s, 22 Inches at 25 s 6 d, 24 Inches at 28 s 6 d, and those of 26 Inches, at 30 s per Dozen.

Hand and Pannel Saws, hardened Plates, viz. those of 22 Inches at 4 s 6 d, 24 Inches at 5 s, and those of 26 Inches at 5 s 6 d each.

Tenant Saws, hardened Plates, are sold at 55 s per Dozen.

Two-hand Peg-tooth, and Whipsteel Saws, are usually sold *singly*, viz. those of 3 Feet at 6 s 9 d, 3 Feet and a half at 7 s 9 d, 4 Feet at 9 s 6 d, 4 Feet and a half at 10 s, 5 Feet at 11 s 6 d, 5 Feet and a half at 12 s 6 d, 6 Feet at 15 s, 6 Feet and a half at 16 s 6 d, 7 Feet at 17 s, 7 Feet and a half at 20 s, 8 Feet at 23 s 6 d, 8 Feet and a half at 25 s, 9 Feet at 30 s 6 d, 9 Feet and a half at 35 s, and those of 10 Feet at 40 s each.

Rib Steel-saws are sold *singly*, viz. those of 5 Feet at 8 s 3 d, 5 Feet and a half at 9 s 6 d, and those of 6 Feet at 10 s 6 d each.

Iron Hand-saws are sold by the Dozen, viz. those of 17 Inches at 8 s, 18 Inches at 9 s, 19 Inches at 10 s, 20 Inches at 12 s, 22 Inches at 13 s, 24 Inches at 16 s per Dozen.

Iron Two-Hand Peg-Tooth, and Whip Saws, are sold *singly*, viz. those of 3 Feet at 3 s 3 d, 3 Feet and a half at 3 s 9 d, 4 Feet at 4 s, 4 Feet and a half at 4 s 6 d, 5 Feet at 5 s, 5 Feet and a half at 5 s 6 d, 6 Feet at 6 s 6 d, 6 Feet and a half at 7 s, and those of 7 Feet at 7 s 9 d each.

Stone Saws are sold at 36 s per hundred Weight.

Hand Saw Screws are sold at 6 s 6 d per Gros.

Hand Saw Sets are sold at 2 s per Dozen.

Ditto, the very best at 3 s per Dozen.

Brick Trowels are sold at 10 s per Dozen.

Laying Trowels at 10 s per Dozen.

Stopping Trowels at 8 s per Dozen.

Setting Trowels at 9 s per Dozen.

Stone Trowels at 10 s 6 d the Dozen.

Spades, N^o 1, is sold at 2 s 6 d. N^o 2 at 3 s, and N^o 3 at 3 s 6 d each.

Jacks, or Hand-screws, single, are sold, per Pair, viz. those of half an Inch at 17 s; 3-4ths of an Inch at 25 s 6 d; 7-8ths of an Inch at 26 s 6 d; Inch at 30 s; those of an Inch and 1-8th at 32 s; and those of an Inch and 1-4th at 40 s per Pair.

Jacks or Hand-screws (double) are sold by the Pair, viz. those of an Inch and a quarter, at 42 s; and those of an Inch and a half at 82 s per Pair.

A TABLE shewing briefly the Prices of the most common Materials used in Building.

1. BRICKS, at 16 s. per Thousand.
2. Tiles, at 1 l. 5 s. per Thousand.
3. Lime, at 12 s. 6 d. per Hundred, i. e. 25 Bushels.
4. Sand, at 3 s. per Load, i. e. 36 Bushels.

L

5. Nine

5. Nine Inch paving Tiles, at 10 s. 6 d. per Hundred.
6. Gutter Tiles, at 12 s. per Hundred.
7. Hair, at 1 s. the Bushel.
8. Rough Timber, at 2 l. per Load, containing 40 Feet.
9. Timber cut to Scantlings fit for Buildings, at 4 l. per Load.
10. Plank, at 5 l. per Load.
11. Tile Pins, at 1 s. 6 d. per Bushel.
12. Withs for thatching at 6 d. per Hundred.
13. Five Feet Lathes, Heart of Oak, at 2 s. 2 d. per Bundle.
14. Four Feet Lathes, Heart of Oak, at 1 s. 11 d. per Bundle.
15. Five Feet Lathes, Sap of Oak, at 1 s. 6 d. per Bundle.
16. Four Feet Lathes, Sap of Oak, at 1 s. 4 d. per Bundle.

How to Estimate the Charge of erecting any House of any Height and Bigness built of Brick and Timber.

BEFORE any Gentlemen or others begin to erect a Building, 'tis requisite to have Draughts or Designs drawn upon Paper, Vellum, or the like, not only for Ease and Expedition, but for preventing Mistakes in carrying on the intended Edifice: Which will also be of Use to prevent the many Errors that may otherwise occur in the Estimation of the Cost and Charge thereof. And in large Fabricks it would be proper to have a MODEL, made either of Pasteboard, Wood, Clay, or the like; for thereby the whole Structure would be seen at one View in Miniature. But however, that you may form a near Estimate of the Charge of the Erection of any Edifice, you must have given you: *First*, the Dimensions thereof, not only in Length and Breadth, but also in Height, in respect of the Number of Stories; for by the Length and Breadth, you may find the Quantity of Squares upon every Floor, and also in the Roof and Tiling, and by the Height you may calculate the Number of the Rods of Brickwork contained in the Walls round about, and in the Partition Walls, if any be; and also in the Chimnies. Then consider how many Pair of Stairs, and of what kind: How many Floors to lay, and of what sort: What Partitions of Timber with Doors, and of what sort: What Timber in Sash Frames and Window Lights, and of what sort: Also consider what, and how many Door-ways, and Windows there are to case; what Rooms to wainscot, and of what sort of Work: Iron-work, as Nails and Hinges, &c. And, in short, all the several Works must be remembered carefully; of which I have already given a particular Account in the foregoing Sections, to which I refer you.

Besides the above Method of estimating, the following Method has likewise been much recommended: And as it may possibly assist some People to obtain a more particular Satisfaction it is here set down.

“ If you would know the Value of a Square of framing of any of the foregoing Articles, with the Timber included, the best and most infallible Way, is to have first a Draught or Plan of the whole Design, drawn on Paper, &c. and from thence to draw others of every particular Part thereof, viz. of the Form or Fashion of the Front, Back-side, and Ends, with the Number of Studs, Braces, &c. with the Length and Scantling of each particular Piece, figured thereon: Also of the framed Work of each of the Floors, shewing the Number of Joists, Trimmers for the Chimney-ways, Stair-ways, &c. with the Length and Scantling of the Girders, Joists, Trimmers, &c. figured thereon: Also Draughts of the framed Work of
“ every

“ every Partition, with the Length and Scantling of every Stud and Brace therein
 “ contained : Also a Draught of the Roof (with their Hips, if any) with the Length
 “ and Scantling of the principal and small Rafter, Hips, Collar-Beams, &c. figured
 “ in their proper Places, then by the *Inspectional Table* on *Plate XXXVII.* facing
 “ Page [81] ; if the Work is to be done in *Ipswich*, you may infallibly proceed by
 “ these Drawings to estimate the whole Charge of the framed Work of any Timber-
 “ Building, or any particular Part thereof.”

If you consider these Drawings, you will not only be able to estimate the Expence of the Timber required, but also the Workmanship ; for by having therein expressed the *Length*, *Breadth*, and *Height* of every particular Part thereof, in Feet and Inches, it will be a very easy, safe and sure Way to calculate the exact Number of superficial Feet, Yards, or Squares, contained in a whole Building, or any particular Part thereof ; and therefore it is consequently the most sure and infallible Way to know the whole Charge, finishing Work and all included, both internal and external. I would advise no Workman to give in the Charge of erecting any Timber-Building, that has not first had Regard to the above-mentioned Methods, to come at the Expence thereof. Because, it is impossible to do it by Guess, or by any other Ways than by this Method, even for the most experienced Workman to be so exact, but that he must either hurt himself, or the Master he works for ; for there can be no general Rule laid down, that will hold good for the Value or Price of a Square of framing for every new Building, unless Houses were built all alike, and of the same *Length*, *Breadth*, and *Height*, and in every Respect the same ; and the Scantlings of the Timber the same in every Particular also ; for herein it is that the Difficulty lies, the various Forms and Magnitudes of Buildings require different Scantlings of Timber*, and consequently the Value of the Timber must be more or less in Proportion thereunto ; and therefore it is impossible to assign or fix any Price *per Square*, that will hold good in general, for the valuing of the framed Work of every Timber-Building.

The Buildings of the City of *London* are valued according to the Rates, of which Rates there are four, *viz.*

1st Rate	2	} Stories, Cellars, and Garret.
2d	3	
3d	4	
4th	5	

And the naked Building, or Shell of a Brick-House (the naked Floors being finished) is thus valued by the Square or 100 Feet, if in High Streets, *viz.*

1st Rate at	25	} per Square.
2d - - - -	35	
3d - - - -	45	
4th - - - -	50	

But these Rates may be augmented at the Discretion of the Surveyor, or according to the finishing the House.

* See the Table of the Scantling of Timber, on Page 76.

5. Nine Inch paving Tiles, at 10 s. 6 d. per Hundred.
6. Gutter Tiles, at 12 s. per Hundred.
7. Hair, at 1 s. the Bushel.
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Besides the above Method of estimating, the following Method has likewise been much recommended: And as it may possibly assist some People to obtain a more particular Satisfaction it is here set down.

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4th	5	

And the naked Building, or Shell of a Brick-House (the naked Floors being finished) is thus valued by the Square or 100 Feet, if in High Streets, *viz.*

1st Rate at	25 l.	} per Square.
2d - - - -	35 l.	
3d - - - -	45 l.	
4th - - - -	50 l.	

But these Rates may be augmented at the Discretion of the Surveyor, or according to the finishing the House.

* See the Table of the Scantling of Timber, on Page 76.

For Story Posts	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Bearing Posts of FIR.	Scantling	Bearing Posts of OAK.	Scantling	Bearing Posts of FIR.	Scantling	Bearing Posts of OAK.	Scantling
	Height		Height		Height		Height	
	if 9 Feet,	6 In. sq.	if 9 Feet,	9 In. sq.	if 8 Feet,	4 In. sq.	if 9 Feet,	6 In. sq.
	12	8	12	12	11	6	11	8
	15	9 $\frac{1}{2}$	15	15	13	7	13	10
For the FLOORS.	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Girders of FIR.	Scantling	Girders of OAK.	Scantling	Girders of FIR.	Scantling	Girders of OAK.	Scantling
	Bearing,		Bearing,		Bearing,		Bearing,	
	if 16 Feet,	9 $\frac{1}{2}$ I. by 13	if 16 Feet,	12 I. by 14	if 16 Feet,	8 I. by 11	if 16 Feet,	10 I. by 13
	20	12 14	20	15 15	20	10 12 $\frac{1}{2}$	20	12 14
	24	13 $\frac{1}{2}$ 15	24	18 16	24	12 14	24	14 15
For the FLOORS.	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Joints of FIR.	Scantling	Joints of OAK.	Scantling	Joints of FIR.	Scantling	Joints of OAK.	Scantling
	Bearing,		Bearing,		Bearing,		Bearing,	
	if 6 Feet,	5 In. by 3	if 6 Feet,	6 In. by 3	if 6 Feet,	5 I. by 2 $\frac{1}{2}$	if 6 Feet,	5 I. by 3
	9	7 $\frac{1}{2}$ 3	9	9 3	9	6 $\frac{1}{2}$ 2 $\frac{1}{2}$	9	7 $\frac{1}{2}$ 3
	12	10 3	12	12 3	12	8 2 $\frac{1}{2}$	12	10 3
For the FLOORS.	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Bridging Joints of FIR.	Scantling	Bridging Joints of OAK.	Scantling	Bridging Joints of FIR.	Scantling	Bridging Joints of OAK.	Scantling
	Bearing,		Bearing,		Bearing,		Bearing,	
	if 6 Feet,	4 In. by 3	if 6 Feet,	5 I. by 3 $\frac{1}{2}$	if 6 Feet,	4 I. by 2 $\frac{1}{2}$	if 6 Feet,	4 I. by 3
	8	5 $\frac{1}{2}$ 3	8	6 $\frac{1}{2}$ 3 $\frac{1}{2}$	8	5 2 $\frac{1}{2}$	8	5 $\frac{1}{2}$ 3
	10	7 3	10	8 3 $\frac{1}{2}$	10	6 3	10	7 3
For the ROOFS.	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Beams or Tyes of FIR.	Scantling	Beams or Tyes of OAK.	Scantling	Beams or Tyes of FIR.	Scantling	Beams or Tyes of OAK.	Scantling
	Length,		Length,		Length,		Length,	
	if 30 Feet,	7 I. by 8	if 30 Feet,	8 I. by 9	if 30 Feet,	6 I. by 7	if 30 Feet,	7 I. by 8
	45	10 11 $\frac{1}{2}$	45	11 12 $\frac{1}{2}$	45	9 8 $\frac{1}{2}$	45	10 11 $\frac{1}{2}$
	60	13 15	60	14 16	60	12 11	60	13 15
For the ROOFS.	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Principal Rafters of FIR.	scantling.	Principal Rafters of OAK.	scantling.	Principal Rafters of FIR.	scantling.	Principal Rafters of OAK.	scantling.
	Lgth.	Top. Botm.	Lgth.	Top. Botm.	Lgth.	Top. Botm.	Lgth.	Top. Botm.
	if 24 ft.	7 I. & 8 I. & 9	if 24 ft.	8 I. & 9 I. & 10	if 24 ft.	5 I. & 6 I. & 7	if 24 ft.	7 I. & 8 I. & 9
	36	8 9 10 $\frac{1}{2}$	36	9 10 12	36	6 $\frac{1}{2}$ 8 10	36	8 9 10 $\frac{1}{2}$
	48	9 10 12	48	10 12 14	48	8 10 12	48	9 10 12
For the ROOFS.	The Proportions for large Buildings.				The Proportions for small Buildings.			
	Small Rafters of FIR.	Scantling	Small Rafters of OAK.	Scantling	Small Rafters of FIR.	Scantling	Small Rafters of OAK.	Scantling
	Bearing,		Bearing,		Bearing,		Bearing,	
	if 8 Feet,	4 $\frac{1}{2}$ I. by 3	if 8 Feet,	5 $\frac{1}{2}$ I. by 3	if 8 Feet,	3 $\frac{1}{2}$ I. by 2 $\frac{1}{2}$	if 8 Feet,	4 $\frac{1}{2}$ I. by 3
	10	5 $\frac{1}{2}$ 3	10	7 3	10	4 $\frac{1}{2}$ 2 $\frac{1}{2}$	10	5 $\frac{1}{2}$ 3
	12	6 $\frac{1}{2}$ 3	12	9 3	12	5 $\frac{1}{2}$ 2 $\frac{1}{2}$	12	6 $\frac{1}{2}$ 3

PURLINGS must be cut to a Scantling, from 9 by 8, to 9 by 12, in large Buildings where they are framed into the principal Rafters; but for small Buildings, where they are laid in the Collar-Beams, from 4 by 5, to 5 by 6.

CELLS and OVER-WAYS are cut to a Scantling from 8 by 9, to 9 by 6.

RAISING PLATES are cut to a Scantling, from 8 by 5, to 9 by 6.

BREAST-SUMMERS to support Walls, and Plates on Walls, cannot easily be brought into any regular Proportion; and must therefore be left to the Workman's Discretion.

Not-

The Scantling or Size of one Side	2		An In any Sc	
	D. P.	2 $\frac{1}{2}$	D. P.	3
2	0.5			
2 $\frac{1}{2}$	0.6	1.0		
3	1.0	1.2		
3 $\frac{1}{2}$	1.1	1.3		
4	1.2	1.5		
4 $\frac{1}{2}$	1.4	1.7		
5	1.5	2.0		
5 $\frac{1}{2}$	1.7	2.2		
6	2.0	2.4		
6 $\frac{1}{2}$	2.1	2.5		
7	2.2	2.6		
7 $\frac{1}{2}$	2.4	3.1		
8	2.5	3.2		
8 $\frac{1}{2}$	2.6	3.4		
9	3.0	3.6		
9 $\frac{1}{2}$	3.1	3.7		
10	3.2	4.1		
10 $\frac{1}{2}$	3.4	4.3		
11	3.5	4.4		
11 $\frac{1}{2}$	3.6	4.6		
12	4.0	5.0		

In the first Column to the Top of all the other Shillings, and those un-

Suppose you would have and direct your Eye in the Column, and in the An. The same Rule is to be N.B. If you want to ling, and 4 times that

Suppose the Scantling

What
1st I. for
2nd I. for
And

What
1st I. for
2nd I. for
And

An Inspectional Table, shewing the Value of one Foot in Length of Oak Timber, that's Squar'd & Cutt to any Scantling or Size fit for Building, at y^e Rate of Two Shillings or any other Price p^r Foot Cubical Measure.

Plate XXXVII

3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12
D.P.	D.P.	D.P.	D.P.	D.P.	D.P.	D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.	S.D.P.
0	1.4	2.0	2.5	3.0	3.3	4.1	5.0	6.0	0.7.0	0.8.1	0.9.3	1.0.5	1.1.4	1.3.0	1.4.5	1.6.3	1.8.0	2.0.0
2	1.6	2.2	2.7	3.2	3.6	4.4	5.4	6.4	0.7.4	0.8.6	0.9.8	1.1.0	1.2.2	1.3.6	1.5.4	1.7.2	1.9.0	
4	2.0	2.5	3.0	3.5	4.0	4.8	5.8	6.8	0.8.0	0.9.2	1.0.4	1.1.6	1.2.8	1.4.2	1.6.0	1.7.8	1.9.6	
6	2.2	2.7	3.2	3.7	4.2	5.0	6.0	7.0	0.8.5	0.9.7	1.0.9	1.2.1	1.3.3	1.5.1	1.6.9	1.8.7	2.0.5	
8	2.4	2.9	3.4	3.9	4.4	5.2	6.2	7.2	0.9.0	1.0.2	1.1.4	1.2.6	1.3.8	1.5.6	1.7.4	1.9.2	2.1.0	
10	2.6	3.1	3.6	4.1	4.6	5.4	6.4	7.4	0.9.5	1.0.7	1.1.9	1.3.1	1.4.3	1.6.1	1.7.9	1.9.7	2.1.5	
12	3.0	3.5	4.0	4.5	5.0	5.8	6.8	7.8	1.0.0	1.1.2	1.2.4	1.3.6	1.4.8	1.6.6	1.8.4	2.0.2	2.2.0	
14	3.2	3.7	4.2	4.7	5.2	6.0	7.0	8.0	1.0.5	1.1.7	1.2.9	1.4.1	1.5.3	1.7.1	1.8.9	2.0.7	2.2.5	
16	3.4	3.9	4.4	4.9	5.4	6.2	7.2	8.2	1.1.0	1.2.2	1.3.4	1.4.6	1.5.8	1.7.6	1.9.4	2.1.2	2.3.0	
18	3.6	4.1	4.6	5.1	5.6	6.4	7.4	8.4	1.1.5	1.2.7	1.3.9	1.5.1	1.6.3	1.8.1	1.9.9	2.1.7	2.3.5	
20	4.0	4.5	5.0	5.5	6.0	6.8	7.8	8.8	1.2.0	1.3.2	1.4.4	1.5.6	1.6.8	1.8.6	2.0.4	2.2.2	2.4.0	
22	4.2	4.7	5.2	5.7	6.2	7.0	8.0	9.0	1.2.5	1.3.7	1.4.9	1.6.1	1.7.3	1.9.1	2.0.9	2.2.7	2.4.5	
24	4.4	4.9	5.4	5.9	6.4	7.2	8.2	9.2	1.3.0	1.4.2	1.5.4	1.6.6	1.7.8	1.9.6	2.1.4	2.3.2	2.5.0	
26	4.6	5.1	5.6	6.1	6.6	7.4	8.4	9.4	1.3.5	1.4.7	1.5.9	1.7.1	1.8.3	2.0.1	2.1.9	2.3.7	2.5.5	
28	5.0	5.5	6.0	6.5	7.0	7.8	8.8	9.8	1.4.0	1.5.2	1.6.4	1.7.6	1.8.8	2.0.6	2.2.4	2.4.2	2.6.0	
30	5.2	5.7	6.2	6.7	7.2	8.0	9.0	10.0	1.4.5	1.5.7	1.6.9	1.8.1	1.9.3	2.1.1	2.2.9	2.4.7	2.6.5	
32	5.4	5.9	6.4	6.9	7.4	8.2	9.2	10.2	1.5.0	1.6.2	1.7.4	1.8.6	1.9.8	2.1.6	2.3.4	2.5.2	2.7.0	
34	5.6	6.1	6.6	7.1	7.6	8.4	9.4	10.4	1.5.5	1.6.7	1.7.9	1.9.1	2.0.3	2.2.1	2.3.9	2.5.7	2.7.5	
36	6.0	6.5	7.0	7.5	8.0	8.8	9.8	10.8	1.6.0	1.7.2	1.8.4	1.9.6	2.0.8	2.2.6	2.4.4	2.6.2	2.8.0	
38	6.2	6.7	7.2	7.7	8.2	9.0	10.0	11.0	1.6.5	1.7.7	1.8.9	2.0.1	2.1.3	2.3.1	2.4.9	2.6.7	2.8.5	
40	6.4	6.9	7.4	7.9	8.4	9.2	10.2	11.2	1.7.0	1.8.2	1.9.4	2.0.6	2.1.8	2.3.6	2.5.4	2.7.2	2.9.0	
42	6.6	7.1	7.6	8.1	8.6	9.4	10.4	11.4	1.7.5	1.8.7	1.9.9	2.1.1	2.2.3	2.4.1	2.5.9	2.7.7	2.9.5	
44	6.8	7.3	7.8	8.3	8.8	9.6	10.6	11.6	1.8.0	1.9.2	2.0.4	2.1.6	2.2.8	2.4.6	2.6.4	2.8.2	3.0.0	
46	7.0	7.5	8.0	8.5	9.0	9.8	10.8	11.8	1.8.5	1.9.7	2.0.9	2.2.1	2.3.3	2.5.1	2.6.9	2.8.7	3.0.5	
48	7.2	7.7	8.2	8.7	9.2	10.0	11.0	12.0	1.9.0	2.0.2	2.1.4	2.2.6	2.3.8	2.5.6	2.7.4	2.9.2	3.1.0	
50	7.4	7.9	8.4	8.9	9.4	10.2	11.2	12.2	1.9.5	2.0.7	2.1.9	2.3.1	2.4.3	2.6.1	2.7.9	2.9.7	3.1.5	
52	7.6	8.1	8.6	9.1	9.6	10.4	11.4	12.4	2.0.0	2.1.2	2.2.4	2.3.6	2.4.8	2.6.6	2.8.4	3.0.2	3.2.0	
54	7.8	8.3	8.8	9.3	9.8	10.6	11.6	12.6	2.0.5	2.1.7	2.2.9	2.4.1	2.5.3	2.7.1	2.8.9	3.0.7	3.2.5	
56	8.0	8.5	9.0	9.5	10.0	10.8	11.8	12.8	2.1.0	2.2.2	2.3.4	2.4.6	2.5.8	2.7.6	2.9.4	3.1.2	3.3.0	
58	8.2	8.7	9.2	9.7	10.2	11.0	12.0	13.0	2.1.5	2.2.7	2.3.9	2.5.1	2.6.3	2.8.1	2.9.9	3.1.7	3.3.5	
60	8.4	8.9	9.4	9.9	10.4	11.2	12.2	13.2	2.2.0	2.3.2	2.4.4	2.5.6	2.6.8	2.8.6	3.0.4	3.2.2	3.4.0	
62	8.6	9.1	9.6	10.1	10.6	11.4	12.4	13.4	2.2.5	2.3.7	2.4.9	2.6.1	2.7.3	2.9.1	3.0.9	3.2.7	3.4.5	
64	8.8	9.3	9.8	10.3	10.8	11.6	12.6	13.6	2.3.0	2.4.2	2.5.4	2.6.6	2.7.8	2.9.6	3.1.4	3.3.2	3.5.0	
66	9.0	9.5	10.0	10.5	11.0	11.8	12.8	13.8	2.3.5	2.4.7	2.5.9	2.7.1	2.8.3	3.0.1	3.1.9	3.3.7	3.5.5	
68	9.2	9.7	10.2	10.7	11.2	12.0	13.0	14.0	2.4.0	2.5.2	2.6.4	2.7.6	2.8.8	3.0.6	3.2.4	3.4.2	3.6.0	
70	9.4	9.9	10.4	10.9	11.4	12.2	13.2	14.2	2.4.5	2.5.7	2.6.9	2.8.1	2.9.3	3.1.1	3.2.9	3.4.7	3.6.5	
72	9.6	10.1	10.6	11.1	11.6	12.4	13.4	14.4	2.5.0	2.6.2	2.7.4	2.8.6	2.9.8	3.1.6	3.3.4	3.5.2	3.7.0	
74	9.8	10.3	10.8	11.3	11.8	12.6	13.6	14.6	2.5.5	2.6.7	2.7.9	2.9.1	3.0.3	3.2.1	3.3.9	3.5.7	3.7.5	
76	10.0	10.5	11.0	11.5	12.0	12.8	13.8	14.8	2.6.0	2.7.2	2.8.4	2.9.6	3.0.8	3.2.6	3.4.4	3.6.2	3.8.0	
78	10.2	10.7	11.2	11.7	12.2	13.0	14.0	15.0	2.6.5	2.7.7	2.8.9	3.0.1	3.1.3	3.3.1	3.4.9	3.6.7	3.8.5	
80	10.4	10.9	11.4	11.9	12.4	13.2	14.2	15.2	2.7.0	2.8.2	2.9.4	3.0.6	3.1.8	3.3.6	3.5.4	3.7.2	3.9.0	
82	10.6	11.1	11.6	12.1	12.6	13.4	14.4	15.4	2.7.5	2.8.7	2.9.9	3.1.1	3.2.3	3.4.1	3.5.9	3.7.7	3.9.5	
84	10.8	11.3	11.8	12.3	12.8	13.6	14.6	15.6	2.8.0	2.9.2	3.0.4	3.1.6	3.2.8	3.4.6	3.6.4	3.8.2	4.0.0	
86	11.0	11.5	12.0	12.5	13.0	13.8	14.8	15.8	2.8.5	2.9.7	3.0.9	3.2.1	3.3.3	3.5.1	3.6.9	3.8.7	4.0.5	
88	11.2	11.7	12.2	12.7	13.2	14.0	15.0	16.0	2.9.0	3.0.2	3.1.4	3.2.6	3.3.8	3.5.6	3.7.4	3.9.2	4.1.0	
90	11.4	11.9	12.4	12.9	13.4	14.2	15.2	16.2	2.9.5	3.0.7	3.1.9	3.3.1	3.4.3	3.6.1	3.7.9	3.9.7	4.1.5	
92	11.6	12.1	12.6	13.1	13.6	14.4	15.4	16.4	3.0.0	3.1.2	3.2.4	3.3.6	3.4.8	3.6.6	3.8.4	4.0.2	4.2.0	
94	11.8	12.3	12.8	13.3	13.8	14.6	15.6	16.6	3.0.5	3.1.7	3.2.9	3.4.1	3.5.3	3.7.1	3.8.9	4.0.7	4.2.5	
96	12.0	12.5	13.0	13.5	14.0	14.8	15.8	16.8	3.1.0	3.2.2	3.3.4	3.4.6	3.5.8	3.7.6	3.9.4	4.1.2	4.3.0	
98	12.2	12.7	13.2	13.7	14.2	15.0	16.0	17.0	3.1.5	3.2.7	3.3.9	3.5.1	3.6.3	3.8.1	3.9.9	4.1.7	4.3.5	
100	12.4	12.9	13.4	13.9	14.4	15.2	16.2	17.2	3.2.0	3.3.2	3.4.4	3.5.6	3.6.8	3.8.6	4.0.4	4.2.2	4.4.0	

EXPLANATION.

Column towards the Left Hand you have the Scantling or Size of one Side of the Piece, and the Scantling or Size of the other Side upon the other Columns; The Figures in every Column but the first towards the Left Hand, shew the Price; those Figures under S stand for Shillings, those under D for Pence, and those under P for so many Eighth Parts of a Penny.

Example.

You would know the Price of a Foot of Stuff whose Sides are 7½ by 6 Inches; Seek in the Left Hand Column of the Table for 7½, run your Eye in a Straight Line from thence until you are right under 6 Inches, the Scantling of the other Side placed on the Top of the Table in the Angle of meeting you will find sett down 7 D, 4 P, which is 7 Pence and 4 Eighths of a Penny, the Price sought.

The same Rule is to be observed in finding the Price to any other Scantling.

If you want to know the Price of a Foot of Stuff whose Scantling is larger than any in the Table, seek the Price to half that Scantling, and that Price is the Price sought.

Example.

Scantling given is 20 by 16, the half is 10 by 8, the Price of 10 by 8 is 1 s. 1 d. 2 P, and 4 times 1 s. 1 d. 2 P. is 4 s. 5 d. 0 P. the Price required.

To make this Table of Universal Use.

If at More than two Shillings, Observe

If your Price is $\left\{ \begin{array}{l} 3 \\ 4 \\ 6 \\ 12 \end{array} \right\}$ p^r Foot More than 2 s. viz^t $\left\{ \begin{array}{l} 2 \\ 2 \\ 2 \\ 3 \end{array} \right\}$ s. d. P. Add $\left\{ \begin{array}{l} 1 \\ 8 \\ 6 \\ 4 \end{array} \right\}$ s. d. P.

Example.

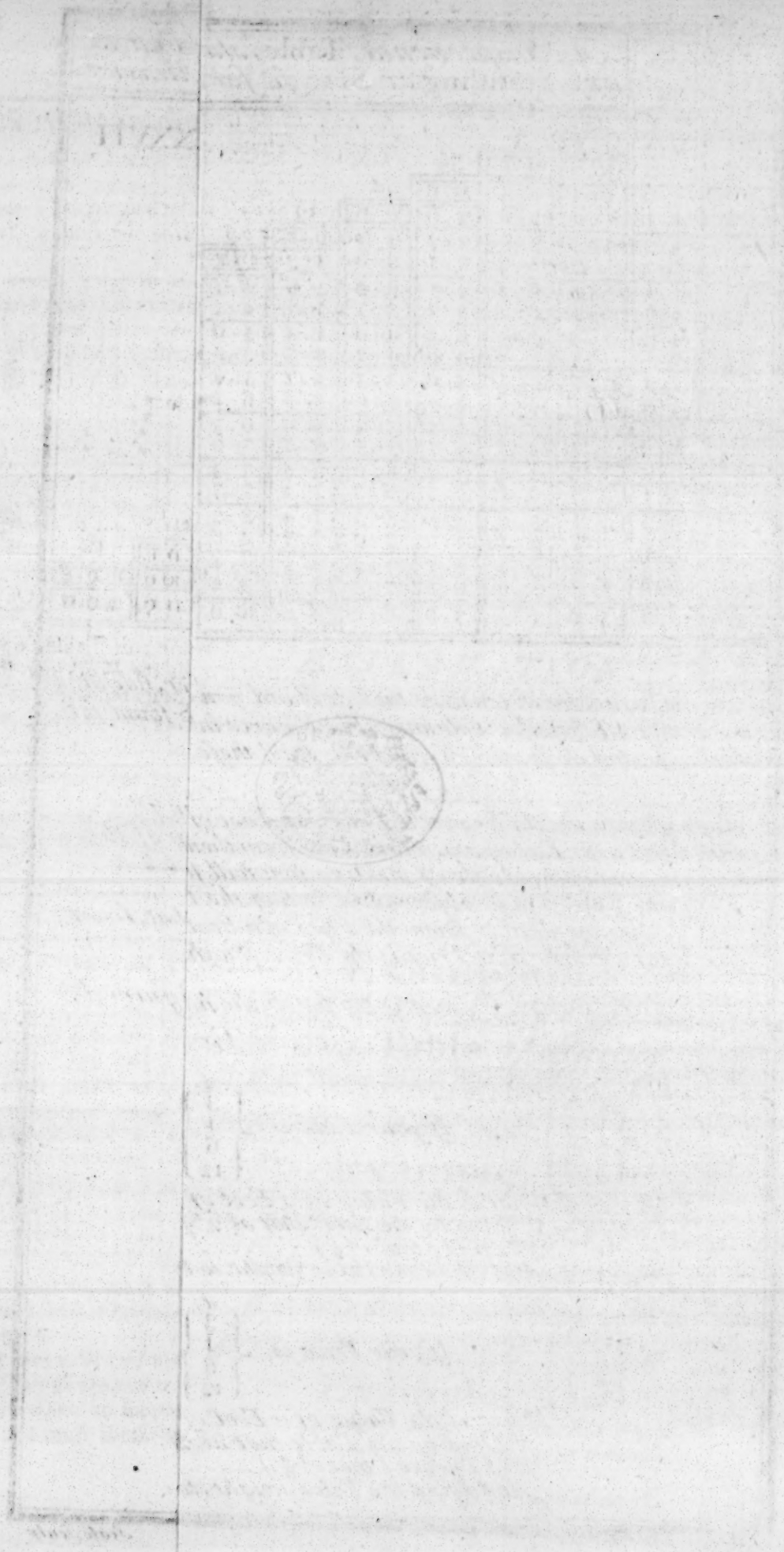
What is the Value of a Foot of Oak or any other Timber 6 Inches by 9 Inches at 2 s. 3 d. p^r Foot Cubic Measure.
1st I find by the Table that at 2 s. p^r Foot its Value is 8 s. 9 d. 8 P. of which is 1 s. 8 d. or one Penny & one Eighth of a Penny.
2nd I add (that 1 s. 8 d.) 0. 1. 1.
And I find the Value sought, to be 0. 10. 1. equal to 10^d Half Farthing.

If at Less than two Shillings, Observe

If your Price is $\left\{ \begin{array}{l} 3 \\ 4 \\ 6 \\ 12 \end{array} \right\}$ p^r Foot Less than 2 s. viz^t $\left\{ \begin{array}{l} 1 \\ 1 \\ 1 \\ 1 \end{array} \right\}$ s. d. P. Deduct $\left\{ \begin{array}{l} 1 \\ 8 \\ 6 \\ 4 \end{array} \right\}$ s. d. P.

Example.

What is the Value of a Foot of Oak or any other Timber 6 Inches by 9 Inches at 1 s. 8 d. p^r Foot Cubic Measure
1st I find by the Table that at 2 s. p^r Foot its Value is 8 s. 9 d. 8 P. of which is 1 s. 8 d. or one Penny & four Eighths of a Penny.
2nd I deduct (that 1 s. 8 d.) 0. 1. 4.
And I find the Value sought, to be 0. 7. 4. equal to 7^d Half Penny.



11/22

10
10
10
10



Notwithstanding the opposite Table is so easy to be understood, yet it may be necessary to make the following Observations.

FIRST, That all Strong or Binding Joists, ought to be half as thick again as Common Joists; that is, if a Common Joist be given three Inches and a half thick, the Binding Joist should be five Inches and a quarter thick, although of the same Depth.

Secondly, That if Conveniency will not admit of Posts in Partitions being square (which is often the Case) observe this Rule: Multiply the Square of the Side of the Posts, as here given by itself. For Instance, If it be nine Inches square, then nine Times nine is eighty-one: Now to keep this Post so as to have the same Strength, find out some Number that shall agree thereto:— Suppose the Partition to be six Inches and three Quarters thick, then your Post must be twelve Inches the other Way, which multiplied together, the Product is eighty-one, equal to nine Times nine, and is nearly of the same Strength.

Thirdly, In Posts that go two or three Stories high, there is no Necessity to observe this Proportion, because they meet with a Tye at every Floor. Suppose a Post was required, of thirty Feet high, and three Stories in this Heighth, two of eleven Feet, and one of eight; find out a Post of Fir, of eleven Feet high, which Scantling is six Inches square, equal to thirty six square Inches, which double for the two Stories; then take that of eight Feet high, whose Scantling is four Inches square, equal to sixteen square Inches, which being all added together, make 88 square Inches; so that such a Post should be about nine Inches and a half square: On Occasion, as it rises in each Story, it may be lessened.

I am not so rigid, as to insist that the Scantlings, as set down in this Table, ought never to be departed from: No, they may be varied in some Respects, as the Workmen shall see fit: Nevertheless, the Usefulness of this Table will appear, if it is compared with the Scantlings of Timber, as settled by Act of Parliament for Rebuilding the City of London, after the Fire in 1666.

And here it may be proper to take Notice of the Observations of a judicious Builder, viz.

“ That there is a Moisture in all Timber; for which Reason, all Bearing-Timber ought to have a moderate Camber or Roundness, for till that Moisture is in some Sort dried out, the said Timber will sag with its own Weight: But then observe, that Girders are best trussed when they are first sawn out, for by their drying and shrinking, it tightens the Trusses in them yet the more.

“ We are also to observe, that all Beams, or Ties, be cut, or forced in Framing, to a Camber, or Roundness, such as an Inch in the Length of eighteen Feet; and that Principal Rafter be also cut or forced up to a Camber, or Roundness, as before: Because all Trusses, though ever so well framed, by the shrinking of the Timber and Weight of the Covering, will sag and sometimes so much as to offend the Eye of the Beholder; so that by this Preparation, your Truss will always appear well.

“ We are also to observe, That all Case-Bays, either in Floors or Roofs, do not exceed twelve Feet, if possible; that is, do not let your Joists in Floors, your Purloins in Roofs, &c. exceed twelve Feet in their Length or Bearing; but rather let the Bearing be eight, nine, or ten Feet; which should be regarded in forming a Plan.

“ You are also to observe, That in Bridging-Floors, you do not place your binding or strong Joists above three, four, or five Feet apart; and that your Bridgings or Common Joists are not above ten or twelve Inches apart; that is, between one Joist and the other.

“ And here also observe, Never to make double Tenants, or Tenons for bearing Uses, such as Binding-Joists, Common-Joists, or Purloins; for, in the first Place, it weakens very much whatever you frame it into; and, in the second Place, it is a Rarity to have a Draught in both Tenons; that is, to draw your Joint close by the Pin; for the said Pin by passing thro’ both Tenons (if there is a Draught to each) must bend so much, that without the Pin be as tough as Wire, must needs break in driving, and consequently do more hurt than good.”

Several

Several dreadful Fires having happened in and about London (in the late Queen Ann's Time) the Rage and Violence whereof, it was apprehended, might, in a great Measure have been prevented, if Party Walls of Brick had been built between House and House, from the Foundation to the Top of the Roof, and less Timber in the Fronts of Houses : For the preventing the like Mischiefs for the future, the Legislature then enjoined,

THAT from, and after the First Day of May, in the Year 1708, every House that should be built within the Bills of Mortality (except on London Bridge) should have Party-Walls between House and House, wholly of Brick or Stone ; and of *two* Bricks thick in the Cellar and Ground-Stories, and *thirteen Inches* thick upwards, from the Foundation quite through each House, and *eighteen Inches* above the Roof ; and that no Modillion or Cornish of Timber under the Eaves should be suffered in any new House ; but that all Front and Rear Walls should be built of Brick or Stone, to be carried *two Feet and a Half* high, above the Garret Floor, and coped with Stone or Brick. And that, if any new Houses should be built, within the Places aforesaid, contrary to these Injunctions, the Owner of every such House, and Head Builder or Workmen, should each of them forfeit *50 l.* one Moiety to the Informer, and the other Moiety to the Poor of the Parish ; to be levied by Warrant, under the Hands and Seals of *two* Justices of Peace, where such Building should be erected, or where such Workmen should inhabit, by Distress and Sale of Goods, upon Conviction upon Oath, or upon the View of *one* Justice of Peace : And for Want of Distress, that the Offender should be imprisoned by Warrant from the said *two* Justices, until Payment, and that the Share of such Forfeitures, appointed to go to the Poor, should be paid into the Hands of the Churchwardens, who are to give a Receipt, and account for the same.

ABOUT *twelve Months* after the above Injunctions took Place, the Legislature found it necessary to render it more effectual, and further enjoined, that from, and after the First Day of May, in the Year 1709, That all, and every House, and Houses, that should be built within the Bills of Mortality (except Houses on London Bridge, and on the River of Thames, below Bridge) should have Party-Walls between House and House, wholly of Brick or Stone, (except Door-Cases, Windows, Lentils, Breast Summers, Story Posts, and Plates) of *two* Bricks thick, in the Cellar, and *one Brick and a Half* thick upwards, to the Top of the Garret Floor ; and that all Gable Ends should be *one Brick* in Length, and *eighteen Inches* above the Roof, and should have no Beams or Rafter in the Brick-works of the Gable Ends. ALSO, to prevent Law-Suits and Differences about Party-Walls, it was enjoined, that all Party-Walls should be built *nine Inches* on each Man's Ground, whether the old Party-Wall should be of Brick, Stone, or Timber ; and that the first Builders should have Power to pull down the same, and build up the new Party-Wall, and be paid by the Owner of the next House, after the Rate of *five Pounds per Rod*, as soon as he should have built the said Party-Wall ; and for all Houses to be built, that will not yield the Rent of *20 l. per Annum*, more than the Ground-rent, to be left to the Discretion of the Builders ; provided that all Party-Walls be built with Brick. AND further, that all Chimney-Jambs, and Backs, should be *nine Inches* thick, from the Cellars to the Roof ; and that all Withs in the Inside of such Chimnies, should be *four Inches and a Half* in Breadth, and the Funnels plaistered or pargetted in the Inside, from the Bottom to the Top ; and that all Chimnies should be arched under the Hearths with Brick (except upon a Ground-floor) and that no Timber should lie nearer than *five Inches* to any Chimney-Funnel or Fire-place ; and that all Mantles between the Jambs, be arched over with Brick ; and that no Wood, or Wainscot, should be placed or affixed to the Front of any Jamb or Mantle of any Chimney, nearer than *five Inches*, from the Inside of such Jamb or Mantle ; and that all Gable Ends, called *nine Inches* thick, in Party-Walls, should be rendered on the roughest Side ; and that all Stoves and Boilers, Coppers and Ovens, hereafter to be set up with Brick or Stone, should not be nearer than *nine Inches* to the adjoining House ; and that no Timber should lie nearer than *five Inches* to any Fire place or Flew.

AND because it had been found, that great Damage frequently happened to Houses by Fire, as well as constant Decay and Ruin, by setting Brick-work upon Timber, it was also enjoined, that from, and after the First Day of June, 1709, no Brick or Stone-work in the Fronts, or Party, or Partition-Walls, of any House, Tenement, or other Building whatsoever, which should be erected upon any new or old Foundation, within London and Westminster, or the Liberties

berties thereof, should be supported, depend, or otherwise bear upon any Sort of Timber, or Wood-work (excepting upon Piles and Planks, where they are absolutely necessary for Foundations in marshy and unfound Ground; and excepting Houses upon *London-Bridge*, and on the *Thames* below Bridge) upon Pain that every Person so offending, should, for every Offence, suffer Imprisonment for *three Months*. And because it had been experienced, that Workmen setting Frames of Wood for Doors and Windows, very near, and often quite ranging with the outside Face of the Wall, by which Means, they soon rot, and perish; occasioning great Cost and Expence, in perpetual Repairs; for Preventing of which, it was also enjoined, that from, and after the First Day of *June*, 1709, No Door-Frame, or Window-Frame of Wood, to be used in any House or Building, which shall be erected upon old or new Foundations, within the Cities of *London* and *Westminster*, or the Liberties thereof (except Houses on *London-Bridge*, and on the River of *Thames* below Bridge) shall be set nearer than *four Inches* to the outside Face of the Wall.

ABOUT *sixteen Years* after the Commencement of the Injunctions above mentioned, several Doubts and Disputes arose, touching the Power of the first Builder to enter into the next adjoining House, to shore and support the same; and at whose Expence, during the Time, the Party-Wall should be pulling down, and rebuilding: As also concerning what Share of the Charges of the Building of Party-Walls, ought to be borne by the Owners and Occupiers of Houses, who have different Interests therein: I say, for these Reasons, it was found necessary to explain and amend the above-mentioned Injunctions, by adding to them what follows, *viz.* That from, and after the Twenty-fourth Day of *June*, in the Year 1725, all Persons who should erect or build, or cause to be erected or built, upon any old or new Foundation, or Foundations, a House or Houses, within the Bills of Mortality, or within the Parishes of *St. Mary la Bone*, and *Paddington*, *Chelsea*, and *St. Pancras* in *Midd'sex* (except Houses on *London-Bridge*, or on the River of *Thames*, below Bridge) and who should think it necessary to pull down any Partition-Wall, should (if the Owner of such House will not, or through Disability cannot agree) give *three Months* Notice in Writing to such Owner or Occupier, to whom any Part of the Wall belongs, of his, hers, or their Intention to pull down such Party-Wall, to the Intent, that before such Party-Wall shall be pulled down, the same may, within the Space of *one Month*, next after such Notice, be viewed by *four* Workmen; *two or more* of such Workmen to be named by the first Builder, and the other *two or more* by the Owner, or Tenant, or Occupier of the next House to that, which is intended to be pulled down; and in Case, either of the said Parties, should in *Three Weeks* (after such Notice) refuse or neglect to name such Workmen, that then the other of the said Parties should name *four or more* Workmen, who should view the Party-Wall intended to be pulled down: and without Consent, the same should not be pulled down, unless the *major Part* of such Workmen should certify in Writing, under their Hands, to the Justices of the Peace, in their next general Quarter Sessions of the Peace, to be holden for the City or County, where such Party-Wall is intended to be pulled down, that such Party-Wall is defective and ruinous, and ought to be pulled down; and if any Person or Persons, should think him, her, or themselves aggrieved by such Certificate, the Justices should upon Complaint, summon before them *one or more* of any such Workmen, and such other Persons as they shall think fit; and should examine the Matter upon Oath, and make such Order or Orders, in the Premises, as they should think just, and reasonable, and that the Determination of the Justices should be final and conclusive, to all Parties, without any Appeal from the same. And it was likewise enjoined, that if within *three Days* after such Certificate made by the Workmen, a Copy thereof be delivered to the Owner or Occupier of such next House, or left there; and there be no Appeal from the same, within the Time aforesaid: In every such Case, if such Owner and Occupier should neglect or refuse to shore and support his, hers, or their Houses, within *six Days* after the Time allowed for Appeal, that then it should, and may be lawful to, and for the first Builder, or Builders, giving Notice as aforesaid, to enter into such House or Houses, (at all reasonable Times) with Workmen and Materials to shore and support the same, at the Charge of such Owner or Occupier; and afterwards that it should be lawful for the first Builder or Builders, to build up a new Party-Wall; and within *ten Days* after such Party-Wall should be built, such first Builder or Builders, should in Writing, leave at such next House, or with the Owner or Occupier thereof, a true Account of the Number of Rods in such Party-Wall; and one half of the Expence thereof, after the Rate of *5 l. per Rod*, should be paid by the Owner or Owners of such House, who are intitled to the improved Rent thereof; and that it should be lawful for such Tenant, or Occupier, to pay the first Builder for the same, as also for the shoring and supporting the House, after he should have built such Party-Wall, and to deduct the same out of the first Rent, that should be due from him or her, to such Owner or Owners; and in Case of Neglect, or Refusal to pay within *twenty-one Days* after Demand, then that it should be lawful for the first Builder or Builders, his, her, or their Executors, or Administrators, to sue such Owner, or Owners, for such their Proportion of the Expences of Building and Shoring, in any Court at *Westminster*. And it was also enjoined, that it should not be lawful, to make or have in any House built from, and after the Twenty-fourth of *June*, in the Year 1725, any Party-Wall, within the Limits aforesaid, any Door-Case, Window, Lintel, Breast-Summer, or Story-Poss, or Plates whatsoever,

ever, unless where *two or more* Houses should be laid together, and so used or occupied, as one House only; and during the Time of such Usage, and no longer, upon Pain that the Owner, or Owners of such House, should for every such Offence, forfeit 50 *l.* But that such Door Case, Window, Lintel, Breast-Summer, or Story Posts, or Plates, may be put in the Front of such House, or Building, for the Convenience of a Shop or Shops only.

AND because it appeared, that several old Houses, in the Limits aforesaid, have instead of one Party-Wall, two old Timber-Walls or Partitions, one belonging to each House, and separate from each other; and since Disputes may arise, concerning the Pulling down and Rebuilding the same; it was also enjoined, that the first Builder, giving *three Months* Notice, as aforesaid, to the Owner or Occupier, or Owners and Occupiers, should have Power to pull down the two old Timber-Walls, or Partitions, which several Houses within the Limits aforesaid, have instead of Party-Walls, and build a new Brick Party-Wall, and should be paid for such Party-Wall, as before directed.

BUT that it should not be lawful for any second Builder or Builders, or his, her, or their Executors, Administrators or Assigns, on any Account whatsoever, to make Use of any Party-Wall of a House standing singly, and Fence-Wall, or to lay any Wood or Timber, or cut any Hole for Cup boards, Presses, or any other Uses in such Party-Walls, on Penalty of 50 *l.*

ALL Penalties hereby imposed are to be sued for * as beforementioned; and one Half thereof shall be to the Informer or Informers, and the other Half to the Poor of the Parish where such Offence shall be committed.

THE Conviction for the foresaid Forfeitures, after the 25th Day of June 1725, shall be before *two* Justices of the Peace, at the least.

N. B. That all such first Owners, Head Builders, or Workmen, who had or should inadvertently offend against these Injunctions, were allowed them till the 29th Day of December, in the Year 1727, to rectify their Defects, paying the Informer reasonable Costs.

I INTENDED to have omitted what related to Party-Walls, in an Act of the 19th of King Charles II. for Re-building the City of London after the Fire in 1666, because it is now looked upon obsolete; but lest I should be blamed for so doing, I have here inserted it, together with the General Rules the Builders were at that Time obliged to observe.

It was then enjoined, that the Surveyors or Supervisors to be appointed, and every of them, within their several Precincts, should take Care that in Building of all Houses within the City of London, and Liberties thereof, there be, and it is hereby enacted by the Authority aforesaid, That there should be Party-Walls, and Party-Piers, set out equally on each Builder's Ground, to be built up by the first Beginner of such Building; and that convenient Tothing be left in the Front Wall by the said first Builder, for the better joining of the next House that should be built to the same: And that no Man should be permitted by the said Surveyors, to build on the said Party-Wall, or on his own contiguous Ground, until he had fully reimbursed the said first Builder the full Moiety of the Charges of the said Party-Wall, and Peers, together with Interest for the same, after the Rate of *six Pounds per Cent. per Annum*, for Forbearance thereof, to be accounted from the Beginning of the said first Building. And in Case any Difference should arise between the first and latter Builders, concerning the true Value of the said Charge, that then the same should be referred to the Alderman of that Ward where such Building should be, and to his Deputy, to mediate an Agreement of such Difference; and where the said Alderman and his Deputy, or one of them should be Parties, or where they could not compose such Difference, as aforesaid, that then the Matter should be referred to the Examination of the Lord Mayor and Court of Aldermen, who should hear and finally determine the same, without any Appeal to be had.

GENERAL RULES for Re-building London in 1666.

I. In every Foundation within the Ground, add one Brick in Thickness to the Thickness of the Wall, next above the Foundation, to be set off in three Courses equally on both Sides. II. That no Timber be laid within twelve Inches of the fore-side of the Chimney Jambs; and that all Joists on the Back of any Chimney, be laid with a Trimmer at six Inches Distance from the Back. III. That no Timber be laid within the Funnel of any Chimney, upon Penalty to the Workman for every Default, Ten Shillings, and Ten Shillings every Week it continues unreformed. IV. That no Joists or Rafter be laid at greater Distances from one to the other, than twelve Inches, and no Quarters at greater Distance than fourteen Inches. V. That no Joists bear a longer Length than ten Feet; and no single Rafter at more in Length than nine Feet. VI. That all Roofs, Window-Frames, and Cellar-Floors, be made of Oak. VII. That all Tile-pins be of Oak. VIII. No Summers or Girders to lie over the Head of Doors and Windows. IX. No Summer or Girder to lie less than ten Inches into the Wall; no Joists than eight Inches, and to be laid in Loam.

* In any Court at Westminster.

THE
London ART and METHOD
 OF
 BUILDING.

PART the Second,
 Containing the FIVE ORDERS of COLUMNS in
 ARCHITECTURE.

CHAP. I.

Of the Tuscan Order.

PLATE IV.



HIS ORDER had its Original in *Tuscany*, a Place very remarkable in *Italy*, whence the Name is derived.

The Shaft of this Column is six Diameters, the Base and Capital are each half a Diameter, so that including Base and Capital, it is seven Diameters high; it diminishes a Quarter of the Diameter, the principal Parts thereof are as followeth,
viz.

M

By

	By my Method.				By Mr. Gibbs's Method.				Builders Repository.					
	Mod.	Min.	Min.	Mod.	Mod.	Min.	Min.	Mod.	Min.	Min.	Mod.	Min.	Min.	
Column Entablature	{ Cornice	0 44	} 105 or 1 45	Mod.	0 45	} 105 or 1 45	Min.	0 45	} 105 or 1 45	Min.	0 45	} 105 or 1 45	Min.	
	{ Frize	0 26			0 30			0 30			0 30			0 30
	{ Architrave	0 35			0 30			0 30			0 30			0 30
Column	{ Capital	0 30	} 420 or 7 0	Min.	420 or 7 0					420 or 7 0				
	{ Shaft	6 0												
	{ Base	0 30												
					525 or 8 45									
Pedestal	{ Cornice	0 15	} 120 or 2 0	Mod.	0 16½	} 131¼ or 2 11½	Min.	0 22	} 131¼ or 2 11½	Min.	0 22	} 131¼ or 2 11½	Min.	
	{ Body or Die	1 15			1 11			1 5½			1 5½			1 5½
	{ Base and Plinth	0 30			0 43¾			0 43¾			0 43¾			0 43¾
					645 or 10 45					656¼ or 10 56¼				
					Total					656¼ or 10 56¼				

So that the whole Height of this Column and Entablature, exclusive of the Pedestal, by my Method, is 525 Minutes, or 8 Modules 45 Minutes; and with its Pedestal 645 Minutes, or 10 Diameters and 45 Minutes.

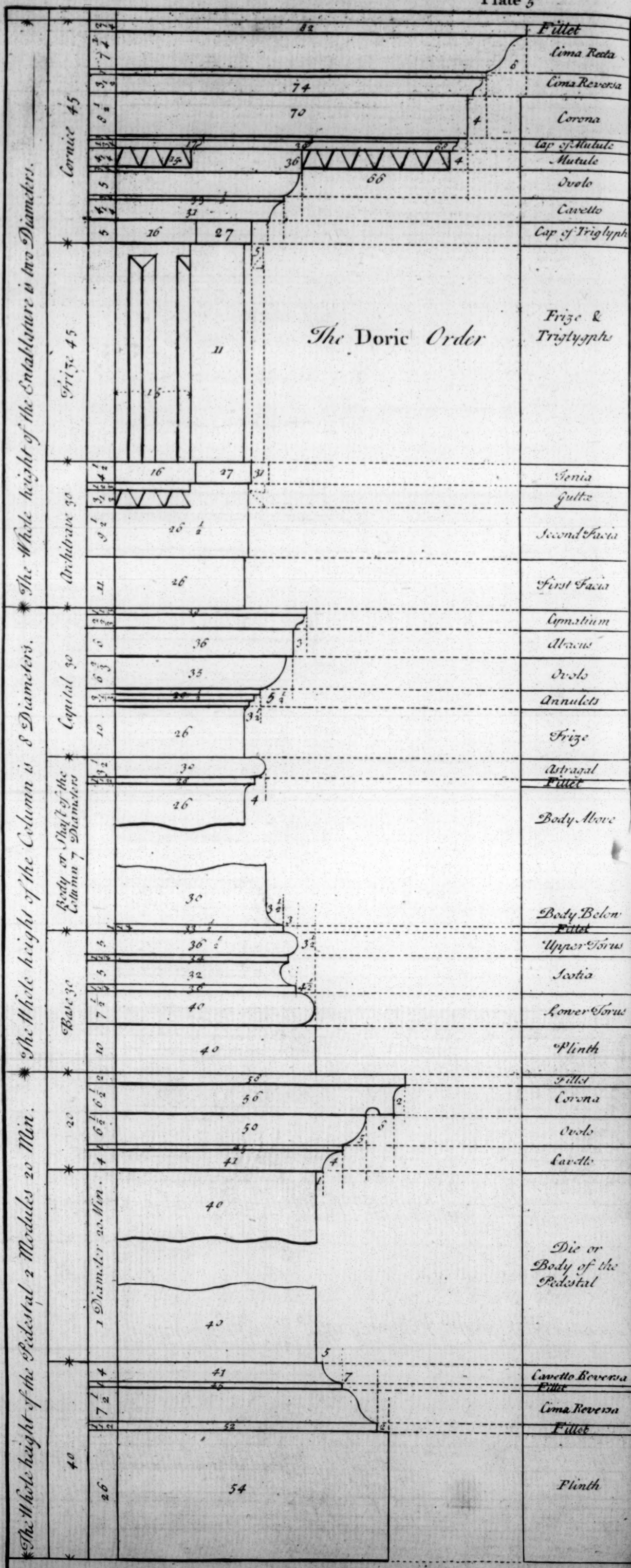
Note, That in the Copper-Plates of the *five Orders* the Figures placed between the Lines proceeding from the Mouldings shews their Height, and those at the Extremities of the Mouldings, their Projections from the Central Line of the Column in *Minutes*.

Note, That the Module made Use of in this Treatise, is the whole Diameter of the Column taken just above the Base and divided into 60 Parts called Minutes.

But Mr. Gibbs in his *Rules for Drawing the five Orders*, hath these same Proportions in his Length of Column and Height of Entablature, but differs from them in the *Pedestal*, making it higher by giving *that* a fourth Part of the Length of the Column and Entablature taken together; also by his Divisions of the Entablature and Pedestal there is some Alteration from these, as by comparing will appear.

And in the *Gentleman's and Builder's Repository* (lately published) you have also a small Difference in the before-mentioned *Pedestal*, which are also compared as above and in Plate *A*.

[illegible]



C H A P. IV.

Of the Doric Order.

P L A T E V.

THIS Order had its Original and Name from the *Dorians*, a *Grecian* People which dwelt in *Asia*.

The Shaft of this Column is seven Diameters high, the Base and Capital are each half a Diameter, which makes the Column (including Base and Capital) 8 Diameters high, it diminishes $\frac{2}{5}$ of its Diameter: The Entablature is two Diameters or a Quarter of the Height of the Column; the Triglyphs are each half a Diameter wide, and so are the Bells that are placed over and under them. The Metops (or Spaces between the Triglyphs) are square. Its principal Parts are as follow, *viz.*

	By my Method.					By Mr. Gibbs's.					Builders Repository.				
	Mod.	Min.	Min.	Mod.	Min.	Mod.	Min.	Min.	Mod.	Min.	Min.	Mod.	Min.	Min.	
Entablature	{	Cornice	0 45	}	120 or 2 0	{	0 45	}	120 or 2 0	{	0 45	}	120 or 2 0	{	
		Frize	0 45				0 45				0 45				
		Architrave	0 30				0 30				0 30				
Column	{	Capital	0 30	}	480 or 8 0	—	480 or 8 0	}	480 or 8 0	—	480 or 8 0	}	480 or 8 0	{	
		Shaft	7 0												
		Base	0 30												
					600 or 10 0										
Pedestal	{	Cornice	0 20	}	140 or 2 20	{	0 18 $\frac{1}{2}$	}	150 or 2 30	{	0 21 $\frac{1}{2}$	}	150 or 2 30	{	
		Body or Die	1 20				1 21 $\frac{1}{4}$				1 25 $\frac{1}{2}$				
		Base and Plinth	0 42				0 50				0 42 $\frac{1}{2}$				
					740 or 12 20										
	</														

So that the whole Height of this Column and Entablature, exclusive of the Pedestal, by my Method is 600 Minutes, or 10 Modules, with its Pedestal 740 Minutes, or 12 Modules 20 Minutes.

But Mr. Gibbs and the *Builder's Repository* also vary in this Order as may be seen by the Scheme annexed, and by Plate A.

CHAP. III.

Of the Ionic Order.

PLATE VI.

THE Ionic Order had its Original in *Ionia*, a Province in *Asia*, because one *Ion* in *Ionia* first invented it; who is said to have erected a Temple of this Order to the Goddess *DIANA*.

This Column, with its Base and Capital, is 9 Diameters, and diminishes $\frac{1}{5}$ of its Diameter; its Entablature is equal to one fifth of the Height of the Column; the Pedestal is 2 Modules 42 Minutes. The principal Parts thereof are as follow, *viz.*

By my Method.					By Mr. Gibbs.					Builders Repository.				
	Mod.	Min.	Min.	Mod.	Min.	Mod.	Min.	Min.	Mod.	Min.	Min.	Mod.	Min.	
Entablature	{ Cornice	0 45	108 or 1 48	Mod.	Min.	{ 0 43	108 or 1 48	Mod.	Min.	{ 0 45	108 or 1 48	Mod.	Min.	
	{ Frize	0 27				{ 0 32 $\frac{1}{2}$				{ 0 27				
	{ Architrave	0 36				{ 0 32 $\frac{1}{2}$				{ 0 36				
Column	{ Capital	0 31	540 or 9 0	Mod.	Min.	540 or 9 00		Mod.	Min.	540 or 9 00		Mod.	Min.	
	{ Shaft	7 59				540 or 9 00				540 or 9 00				
	{ Base	0 30				540 or 9 00				540 or 9 00				
648 or 10 48														
Pedestal	{ Cornice	0 21	163 or 2 43	Mod.	Min.	{ 0 20 $\frac{1}{4}$	162 or 2 42	Mod.	Min.	{ 1 23 $\frac{1}{2}$	162 or 2 42	Mod.	Min.	
	{ Body or Die	1 40				{ 1 27 $\frac{3}{4}$				{ 1 32 $\frac{1}{2}$				
	{ Base and Plinth	0 42				{ 0 54				{ 0 46 $\frac{1}{2}$				
811 or 13 31					810 or 13 30					810 or 13 30				

So that the whole Height of this Column, exclusive of its Pedestal, by my Method is 648 Minutes, or 10 Modules 48 Minutes: With its Pedestal 811 Minutes, or 13 Modules 31 Minutes.

This Order hath a greater Variation than the last, from the afore-said Authors, in the Entablature, as well as the Pedestal, as above, and by Plate A.

height of Entablature 108. Minutes

Whole height of Column 9 Diameters

Whole height of pedestal 2. Mod. 43 Min.

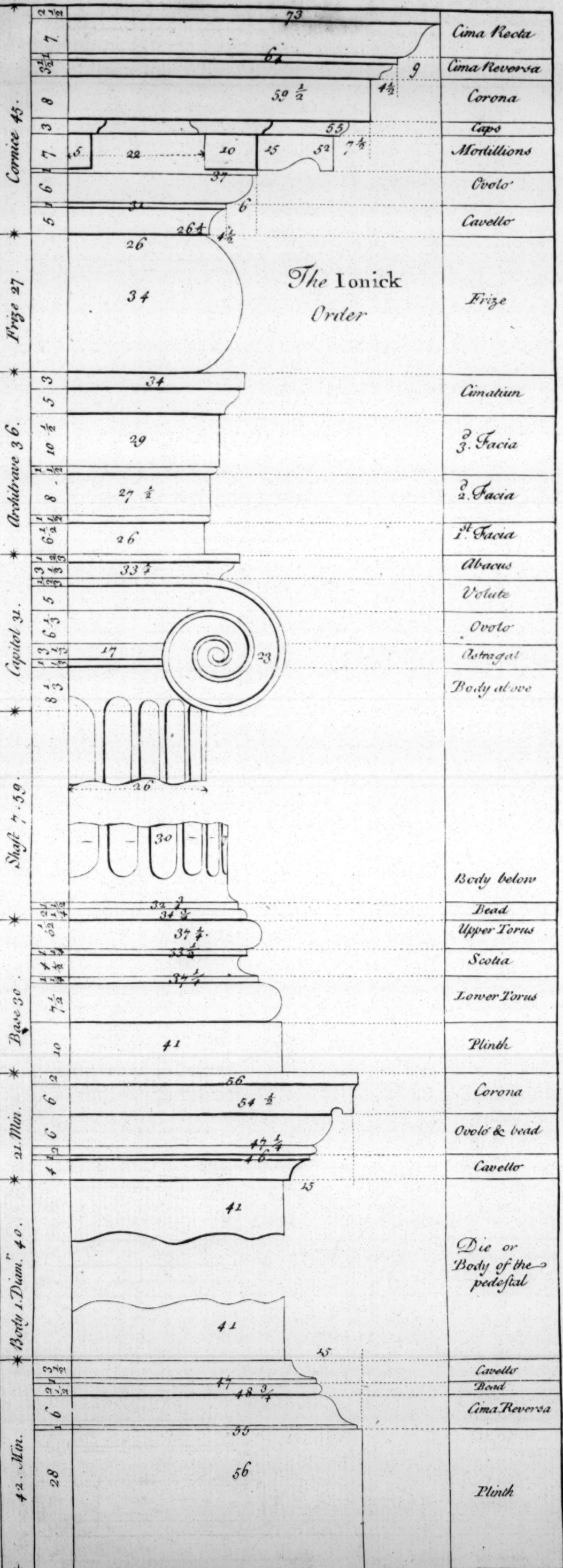


Plate VII			
* The Whole Height of the Column 9 M. 30. Minutes.	* Capital 70	57 $\frac{1}{2}$	Bell of the Capital
		30	Astragal
		26 $\frac{1}{4}$	
		30	Body Below
		33	Bead
		37	Upper Torus
		34	Scotia
		37	Lower Torus
		7	
		10	Plinth
* The Whole Height of the Pedestal 2. Mo. 48 Min	* Base 39	24	Plinth
		4	Torus
		4	Cima Reverfa
		5	Ogee
		1	Die or Body of the Pedestal
		4	Ogee
		4	Cima Reverfa
		4	Torus
		4	Ogee
		4	Cima Reverfa
* The Whole Height of the Entablature 114 Minutes	* Architrave 38	26 $\frac{1}{4}$	First Fascia
		8 $\frac{1}{4}$	Second Fascia
		10 $\frac{1}{4}$	Third Fascia
		2	
		2	
		2	
		2	
		2	
		2	
		2	
* The Whole Height of the Entablature 114 Minutes	* Freeze 28 $\frac{1}{2}$	28 $\frac{1}{2}$	Freeze
		5	
		5	Cima
		5	Dentels
		5	Ovolo
		6	Modillions
		7	Corona
		3	Cima Reverfa
		6 $\frac{1}{2}$	Cima Recta
		7	Fillet

C H A P. IV.

Of the Corinthian Order.

P L A T E VII.

THIS Order was first designed by an Architect of *Athens*, and executed at *Corinth*; from whence it had its Original and Name of *Corinthian* Order.

This Column, including Base and Capital, is 9 Diameters and a half high, and diminishes one eighth Part of its Diameter: Its Entablature is one fifth of the height of the Column.

The Height of the Capital is seventy Minutes, of which the Abacus must be a seventh Part; and the remaining Part being divided into three equal Parts, the two lowermost gives the Height of the first and second Tour of Leaves; and the third, or uppermost Part, being divided into two equal Parts, the lower Part of the two shall be for the Caulicoli, or Scrolls, and the upper the Extremes of the Voluta's. The Height of the Pedestal is 2 Modules 48 Minutes. The principal Parts are as follow, viz.

	By my Method.						By Mr. Gibbs's Method.						Builders Repository.						
	Mod.	Min.	Min.	Mod.	Min.		Mod.	Min.	Min.	Mod.	Min.		Mod.	Min.	Min.	Mod.	Min.		
Entablature	{	Cornice	0	47 $\frac{1}{2}$	}	114 or 1	54	{	0	48	}	120 or 2	0	{	0	47 $\frac{1}{2}$	}	105 or 1	54
	{	Frize	0	28 $\frac{1}{2}$				{	0	36				{	0	28 $\frac{1}{2}$			
	{	Architrave	0	38				{	0	36				{	0	38			
Column	{	Capital	1	10	}	570 or 9	30	{	1	10	}	600 or 10	0	{	1	10	}	570 or 9	30
	{	Shaft	7	50				{	8	20				{	7	50			
	{	Base	0	30				{	0	30				{	0	30			

So

So that the whole Height of this Column, exclusive of its Pedestal, by my Method, is 684 Minutes, or 11 Modules, 24 Minutes; with its Pedestal 852 Minutes, or 14 Modules 12 Minutes.

In this Order Mr. Gibbs makes a greater Variation than in any other, in all the principal Parts of the *Pedestal*, *Column*, and *Entablature*, as will appear by comparing the Schemes and seeing Plate A.

C H A P. V.

Of the Composite Order.

P L A T E VIII.

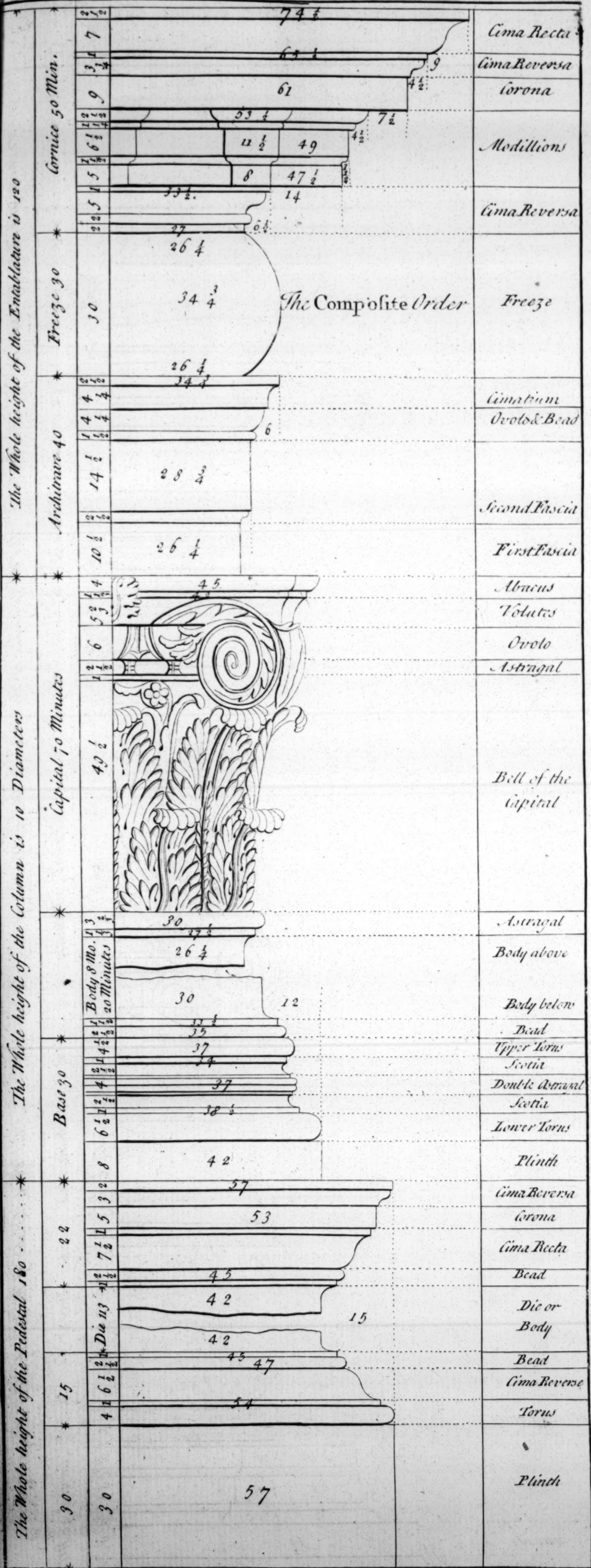
THE *Composite* Order is so called, because it is composed of the *Ionic* and *Corinthian* Orders, and not a compleat Order of itself. 'Tis of a *Roman* Extraction, and by many is called the *Roman* Order, and by some the *Italian* Order. This Order is more slender than the *Corinthian*, and may be made like it in all Parts, except in the Capital.

This Column, including its Base and Capital, is ten Diameters high, it diminishes one Eighth of its Diameter, and the Entablature is one fifth of the Height of the Column. The Pedestal is 3 Modules high.

The principal Parts thereof are as follow, viz.

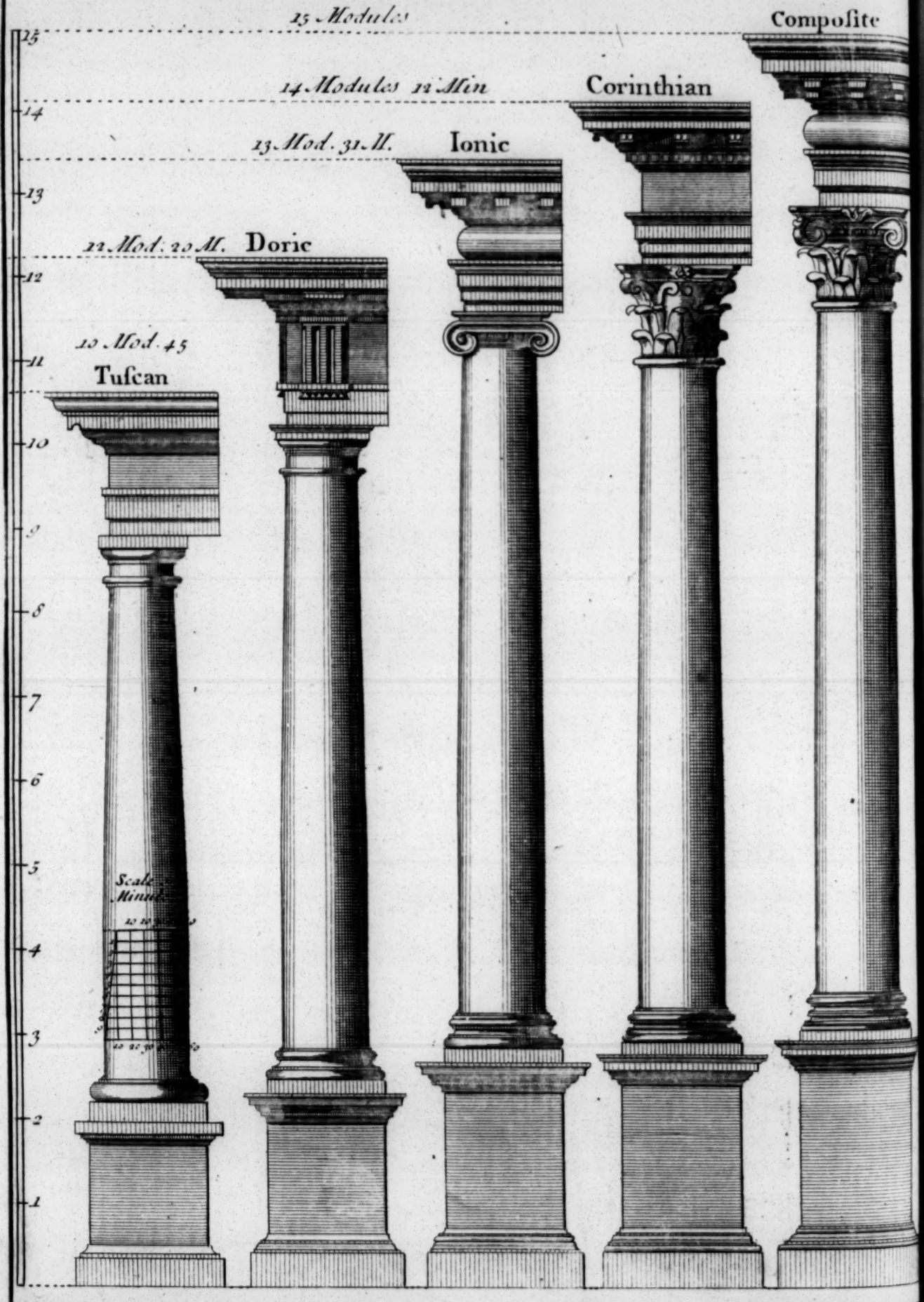
	By my Method.					By Mr. Gibbs's.					Builders Repository.				
	Mod.	Min.	Min.	Mod.	Min.	Mod.	Min.	Min.	Mod.	Min.	Mod.	Mid.	Min.	Mod.	Min.
Column Entablature	{ Cornice	0 50	120 or 2	0	0	{ 0 48	120 or 2	0	{ 0 50	120 or 2	0	0 30	0 40	120 or 2	0
	{ Frize	0 30				{ 0 36			{ 0 30						
	{ Architrave	0 40				{ 0 36			{ 0 40						
Capital	1 10	600 or 10	0	0	0	1 10	600 or 10	0	1 10	600 or 10	0	8 20	0 30	600 or 10	0
	8 20					8 20			8 20						
	0 30					0 30			0 30						
Shaft															
Base															
			720 or 12												
Pedestal	{ Cornice	0 22	180 or 3	0	0	{ 0 22 $\frac{1}{2}$	180 or 3	0	{ 0 25 $\frac{1}{2}$	180 or 3	0	{ 1 43 $\frac{1}{2}$	0 51 $\frac{1}{2}$	180 or 3	0
	{ Body or Die	1 53				{ 1 37 $\frac{1}{2}$			{ 1 43						
	{ Base and Plinth	0 45				{ 1 00			{ 0 51 $\frac{1}{2}$						
			900 or 15											900 or 15	

Plate VIII



The Five Orders in general

Plate IX



E. Koppus Delin.

B. Cole Sculp.

So that the whole Height of this Column, exclusive of its Pedestal, by my Method, is 720 Minutes, or 12 Modules; with its Pedestal 900 Minutes or 15 Modules.

In this Order Mr. Gibbs makes not the least Variation in his principal Parts, from the *Corinthian Order*, so that his is only a Repetition of the last; but in the *Builder's Repository*, there is a Variation from the *Corinthian*, though not much from Mr. Gibbs. See Plate A.

PLATE IX. Is all the five Orders in general collected together from the foregoing Proportions, and may be measured by the Scale of Minutes there laid down.

And PLATE A, shews the Variations from these Proportions by two other Authors as mentioned in the foregoing Chapters.

CHAP. VI.

Of the INTERCOLUMNIATION of the five ORDERS of Columns in ARCHITECTURE.

PLATE B.

1. Of the TUSCAN Order.

THE Intercolumniation of this Order, that is, the Distance that the Columns should be placed from each other, is greater in this than in any of the other Orders, because its Architrave is generally made of Wood, and therefore hath an Intercolumniation of 4 Diameters, or 4 Diameters 45 Minutes.

This Intercolumniation, *Vitruvius* calls *Arxostyles*, which is a compound Greek Word, signifying Columns thin set.

Note, The Intercolumniation of Columns, is always accounted from the central Line of the Column.

When you are to introduce Arches between the Columns, the Intercolumniation may be 4 Diameters and a half, or 5 Diameters 15 Minutes: The Aperture, or Opening in Breadth, must be 3 Diameters 10 Minutes, and 4 Diameters in Height to the lower Part of the Impost.

2. Of

2. Of the DORIC Order.

THE Intercolumniation of this Order is always regulated by the Number of Trigliphs in the Frize, viz. when 1, 2, 3, 4, or 5 Trigliphs are placed between those over the Columns, the Inter-columniation must be for

	D.	M.
1 Trigliph	2	30
2 Trigliphs	3	45
3 Trigliphs	5	0

These are the several Intercolumniations when the Frize is enriched with its Trigliphs; but when they are not regarded, the Inter-columniation is three Diameters precisely.

When the *Doric* Arch is to be made, the Intercolumniation must be greater than either of the preceding, and must contain either 4 or 5 Trigliphs between those over the Columns; and for such an Intercolumniation there must be for

	D.	M.
4 Trigliphs	6	15
5 Trigliphs	7	30

3. Of the IONIC Order.

THE Intercolumniation of this Order depends upon the Number of Modillions between Column and Column; for, since that over every central Line of a Column, there is placed a Modillion as the Trigliphs of the *Doric* Order are: It therefore follows that every Intercolumniation will be odd, and when 3, 5, 7, or 9 Modillions are placed between those over the Column, the Intercolumniation must be for

	D.	M.
3 Modillions	2	8
5 -----	3	12
7 -----	4	16
9 -----	5	20

These

These are the various Intercolumniations of Columns alone, but when they have Arches or Doors between the Intercolumniation, they may be something larger, viz.

	D.	M.
11 Modillions	6	24
13 - - - - -	7	28
15 - - - - -	8	32

N. B. That the most common Intercolumniation is 2 Diameters and one fourth, which *Vitruvius* calls *Eustileos*, being (as he saith, and the Word implies) the best kind of Intercolumniation.

4. Of the CORINTHIAN Order.

THE Intercolumniation of this Order may be the same as the *Ionic*, viz. 2 Diameters and a Quarter; but if we have regard to the Modillions in the Cornice, we must also observe that over the central Line of a Column there be placed a Modillion.

It therefore follows that every Intercolumniation will be odd, and when 3, 5, 7, or 9 Modillions are introduced, the Intercolumniation must be for

	D.	M.
3 Modillions	2	30
5 - - - - -	3	45
7 - - - - -	5	0
9 - - - - -	6	15

The Intercolumniation may yet be greater; where the Arch of this Order is to come between; as

	D.	M.
11 Modillions	7	30
13 - - - - -	8	45

5. Of the COMPOSITE Order.

THE Intercolumniation of this Order is 1 Diameter 30 Minutes, when the Columns are placed in Pairs; but when single may be larger, and when an Arch is comprised between them may be extended even to 6 or 8 Diameters. But the Intercolumniation is also regulated by the Number of Modillions contained therein, as, first, Columns placed in Pairs, having two Modillions between, are (as above) 1 Diam. 30 Min. but when they consist either of 8, 11, or 16 Modillions, then the Intercolumniation must be for

	D.	M.
8 Modillions	4	21
11 - - - - -	5	48
16 - - - - -	8	13

For the Imposts of Arches for this, and all the other Orders, See Plate XIV.

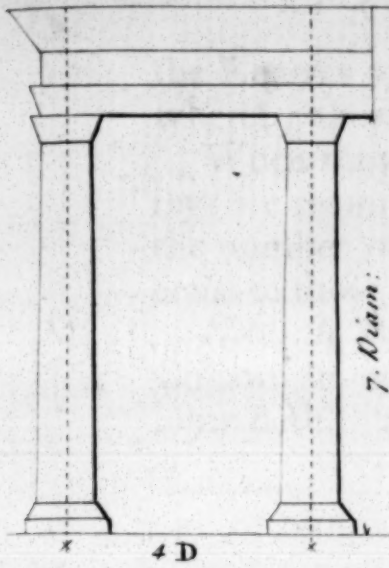
C H A P. VII.

Of P I L A S T E R S.

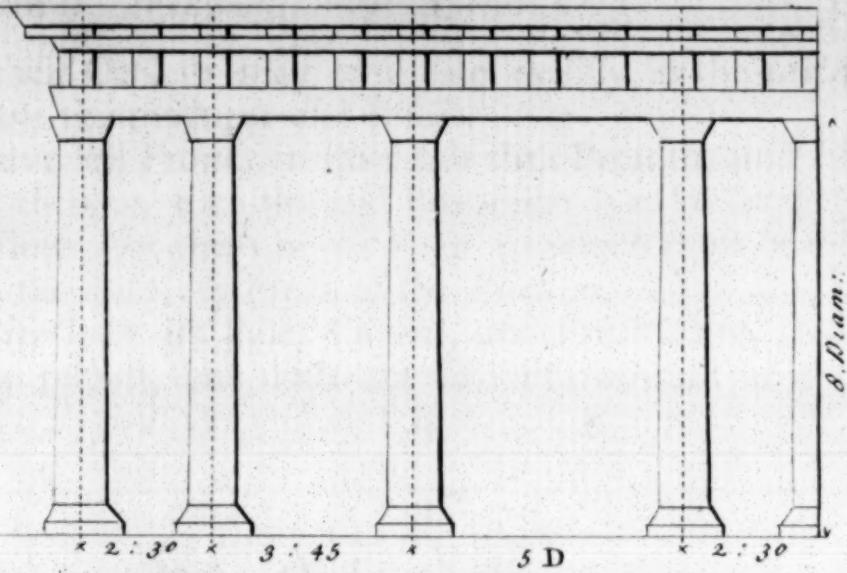
PILASTERS are a kind of square Columns, which appear to be in part sunk within the Wall against which they stand, and that Part of them which appears before the Face of the Wall, is called their Projecture, which Projections are to be considered with respect to the Order they are of: As first, The *Tuscan* and *Doric* need be no more than $\frac{1}{5}$ or $\frac{1}{6}$ of their Diameters, excepting when they are to receive Imposts against them, and then they must project $\frac{1}{4}$ of their Diameter. The Projection of the Imposts must not project more than the *Pilasters*.

Secondly, *Pilasters* of the *Ionic*, *Corinthian*, and *Composite* Orders, should have a Projection equal to half their Diameters, that the

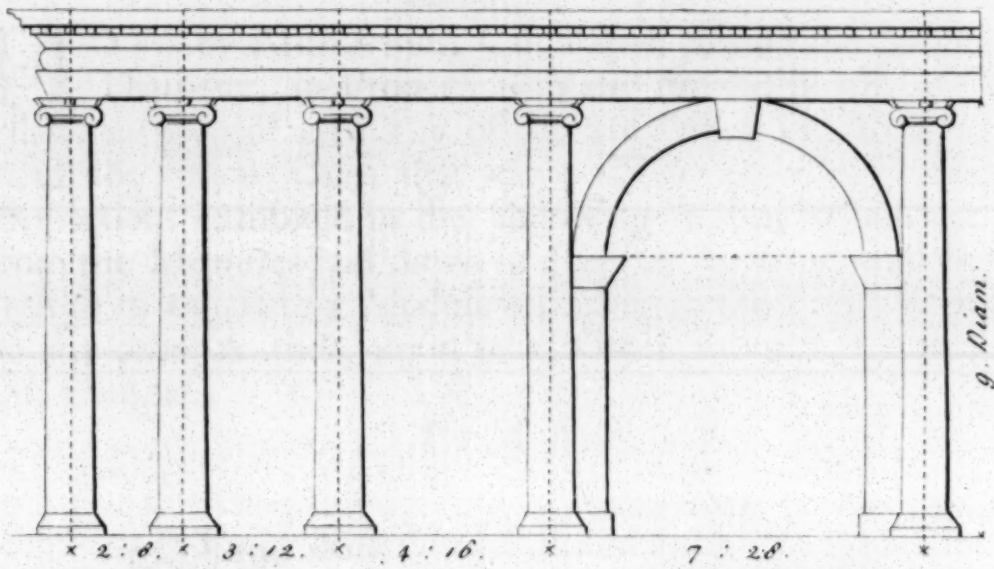
Tuscan



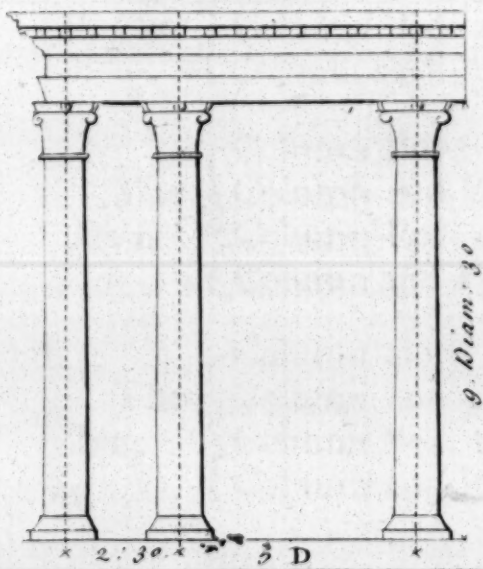
Doric



Ionic



Corinthian



Composite

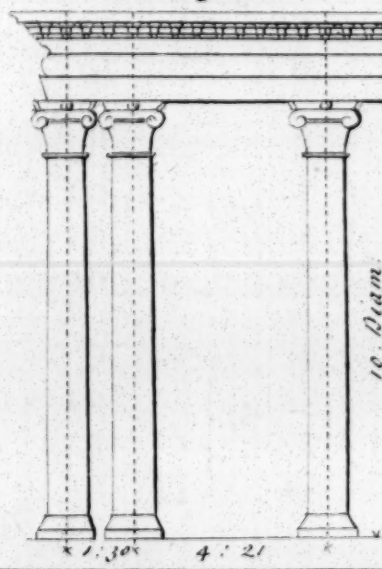
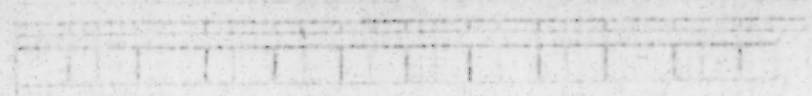


Figure 1

Figure 2



the Returns of their Capitals may terminate exactly in the middle, whereby they have the most graceful Effect.

When they have less Projection than half their Breadth, and *Flutings* are required thereon, then the said Projection is to be limited by the number of Flutes, let them be 1, 2, or 3, which must be made equal to those on the Face, or Front of the *Pilasters*.

Note, A *Pilaster* hath its Base, Capital, and Entablature, as the Column in every respect, but doth not diminish upward as a Column doth.

CH A P. VIII.

HOW by Arithmetical Calculation to find the Module or exact Diameter, in Proportion to any limited height of Columns or Pilasters; according to any of the five Orders in Architecture; and in all the various Cases that can possibly occur in Practice, by the Proportions exhibited in the following Table, which are deducible from the Measures laid down in *Plate 4*, 5, 6, 7, and 8.

Also to calculate a Module according to the Proportions laid down by any other Author, upon what Order soever. Likewise by Scale and Compass.

The TABLE.

		Mod.	Min.	Feet	Inches	
The <i>Tuscan</i>	{ Column alone - - - - -	7	00	} or	7 0	} in height.
	{ Column and Entablature -	8	45		8 9	
	{ Column Ped. and Entab.	10	45		10 9	
	{ Column and Ped. only -	9	00		9 0	
The <i>Doric</i>	{ Column alone - - - - -	8	00	} or	8 0	} in height.
	{ Column and Entablature -	10	00		10 0	
	{ Column Ped. and Entab.	12	20		12 4	
	{ Column and Ped. only -	10	20		10 4	
The <i>Ionic</i>	{ Column alone - - - - -	9	00	} or	9 0	} in height.
	{ Column and Entablature -	10	48		10 9 $\frac{5}{8}$	
	{ Column Ped. and Entab. -	13	31		13 6 $\frac{1}{2}$	
	{ Column and Ped. only -	11	43		11 8 $\frac{5}{8}$	
		N 2				
						The

		Mod.	Min.	Feet	Inches	
The Corin- thian	{ Column alone - - - - -	9	30	9	6	} in height.
	{ Column and Entablature	11	24	11	4 $\frac{1}{4}$	
	{ Column Ped. and Entab.	14	12	14	2 $\frac{1}{8}$	
	{ Column and Ped. only -	12	18	12	3 $\frac{1}{8}$	
The Compo- site.	{ Column alone - - - - -	10	00	10	0	} in height.
	{ Column and Entablature	12	00	12	0	
	{ Column Ped. and Entab.	15	00	15	0	
	{ Column and Ped. only -	13	00	13	0	

The Use of the Table, in finding the exact Module, or Diameter, in Proportion to any Height of Columns or Pilasters.

E X A M P L E.

Suppose you want to know the Module, or Diameter, for erecting the *Doric* Column and Entablature, to a limited Height of 15 Feet 3 Inches.

Seek in the Table, the *Doric* Column and Entablature, and right against it you will find 10 Modules, or 10 Feet in Height; which is equal to ten Modules, accounting every Module to contain one Foot.

Now to find a Module in proportion to the Height proposed, *viz.* 15 Feet 3 Inches. Say, by the *Rule of Three Direct*, If 10 Feet (*Note*, you may always reject the fractional Part of an Inch in the Height, if any) in Height require a Module of 12 Inches, what will 15 Feet 3 Inches require?

Now as the first and third Numbers do each consist of two Denominations, *viz.* Feet and Inches, you must therefore always observe, First, to reduce each Number into the lowest Denomination, that is, Inches: And observe also, that the first and third Numbers are both of one Denomination; that is, both Feet, or both Inches. Which is done by multiplying the Feet by 12, and add in the Inches as followeth.

If

Feet Inches Feet Inches
If 10—12—15 3.
12 12

Inches Inches Inches
If 120—12—183
12

20 33
10 15

366
183

1ft. No. 120 Inch. 183

3d. No. in Inches 120)2196(18 Inch.

120

996

960

36 Rem.

16 Multip.

216

36

120)576(4

480

96

Note, You must always multiply the Remainder by 16, and divide as before, and the Quotient will be so many 16ths of an Inch; as you see in this Example.

From the foregoing Operation it appears, that to erect a *Doric* Column with its Entablature, to a limited Height of 15 Feet 3 Inches, it will require a Module, or Diameter, of 18 Inches and $\frac{4}{16}$ of an Inch in proportion thereunto.

The same Rule is to be observed in finding a Module to any of the other Orders; in any of the Cases, or to any Height whatsoever.

Note, Always observe to make use of the Feet and Inches, set down in the Table against the Case you require the Module to be calculated to, for the first Number in the Operation; and 12 Inches for the second; because 12 Inches is a proportionable Module to those Heights in the Table: And the third Number must be the Height that you require a Module in Proportion to.

To

To calculate a Module according to the Proportions laid down by any Author, and upon what Order soever.

To calculate a Module in true Proportion according to any other Author, you must first make a Module, or Scale, divided into 60 equal Parts called Minutes; and the same Length again divide right under the former, into 12 equal Parts, which you must call Inches; and each of those Inches you must again sub-divide into four equal Parts, to represent Quarters of Inches: See *Plate X*. This Scale so divided will shew by Inspection, how many Inches are contained in any number of Minutes; which is to be made use of in the following Manner.

E X A M P L E.

Suppose you would find a Module for erecting a *Doric* Column with its Pedestal, and Entablature: according to the Measures laid down by *Perrault*, which contains 12 Modules 19 Minutes. You must account the 12 Modules 12 Feet, and the 19 Minutes you must look for in the Scale above-mentioned in *Plate X*. and you will find that 19 Minutes contains 3 Inches and $\frac{3}{4}$, which makes the whole Height to contain 12 Feet 3 Inches $\frac{3}{4}$. Rejecting the $\frac{3}{4}$, say, if 12 Feet 3 Inches in height, require a Module of 12 Inches, what will any other Height require? The same of any other Author, in any of the Cases before mentioned, upon any Order.

CHAP. IX.

A Description and Use of a new invented Inspectional Plane-Scale, for finding the exact Diameter, in proportion to any limited Height, of Columns and Pilasters.

PLATE X.

IN the upper Part there is a Scale of 26 Feet, and at the beginning thereof one of those Feet or Distances, are divided into 12 equal Parts, called Inches. The 26 Feet are each divided into 4 equal Parts, and every one of those Divisions represent Quarters of Feet.

The Scale for finding the Diameter to any limited Height, is the Angles ABC, ABD, ABE, ABF, and ABG.

The Perpendiculars, that cross the Angles, shew which Out-lines represent the *Tuscan*, *Doric*, *Ionic*, *Corinthian* and *Composite* Orders; and the Divisions on those Perpendiculars marked R L K, shew how to find the Diameter for erecting a Column alone; the Column and its Entablature; the Column, Entablature, and Pedestal; or the Column and Pedestal only: And which of those Divisions represents each of these in particular, is sufficiently explained in the *Plate*.

EXAMPLE I.

Suppose you would know the Diameter for erecting the *Doric* Column with its Entablature, to a limited Height of 18 Feet 7 Inches and $\frac{1}{2}$.

Apply a Square to one Side of the Scale, as suppose the Side MN; move the Square backward and forward until the Side thereof is right over 18 Feet 7 Inches and $\frac{1}{2}$; then from the Line AB, to the Line ID (which is the Line for the *Doric* Order) draw the Line *ae*. Secondly, Take a Ruler, and lay from the Point A, over the first Division on the *Doric* perpendicular Line, as at R, and make a Mark by the Side of the Ruler, just over the Perpendicular

cular ae , as at f . Then is ef a proportional Diameter to the limited Height as required. If you take the Distance ef between your Compasses, and apply them to the beginning of the upper Scale of Feet and Inches, it will shew you the Diameter in Feet and Inches, which in this Example is 1 Foot 10 Inches and one third.

EXAMPLE II.

Suppose you would find the Diameter for delineating on Paper, &c. a Column or Pilaster to any height your Paper will admit of, not at all regarding how many Feet and Inches is represented. In such a case, take the Scale, and lay that Side that hath the Feet and Inches to the Paper whereon you intend to draw, laying the Perpendicular AQ exactly over where you intend the bottom of your Draught, and at your intended Height, make a Mark on the Side of the Scale, as at o ; then for finding the Diameter, draw a Perpendicular (as before directed) from the Point o , and you have your Desire.

Note, The Reason that I did not make use of any other height in this Example than in the former, was only to avoid Confusion.

Note, The same Method is to be used in finding the Diameter to any of the other Orders, as in the foregoing Examples.

CHAP. X.

A Description of my New invented Inspectional Plane-Scale, for reducing Modules and Minutes to Feet and Inches.

PLATE XI.

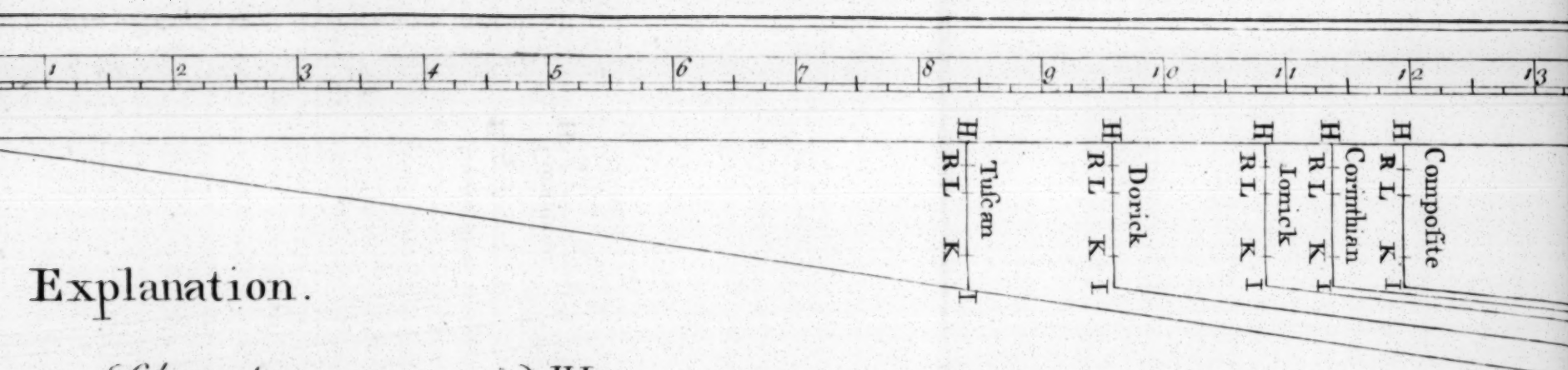
THE best Way to make use of this Scale, is to delineate it upon Wood, or to paste it on a piece of thin Board plained very smooth, and then squared, and cut to the exact form and bigness of the Out-lines thereof, as $FGOPE$. When you paste it on the Board, be careful that there be no Rumble, and that you do
not



Exp

the Diameter to the

N.B. This Scale
like, before

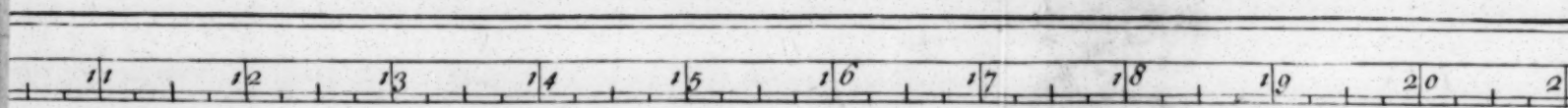


Explanation.

to the	Column alone.....	HI.
	Column & Entablature.....	IR.
	Column, Entablature & Pedestal.....	IL.
	Column & Pedestal.....	HK.

This Scale must be delineated on Wood, Such as Box, Paretree; or the like, before it can be made Use of in Practice.





Composite
Corinthian
Ionic
H
R L
K I



A Module Divided into Minutes.



A Foot Divided into Inches and Quarters

Plate X.

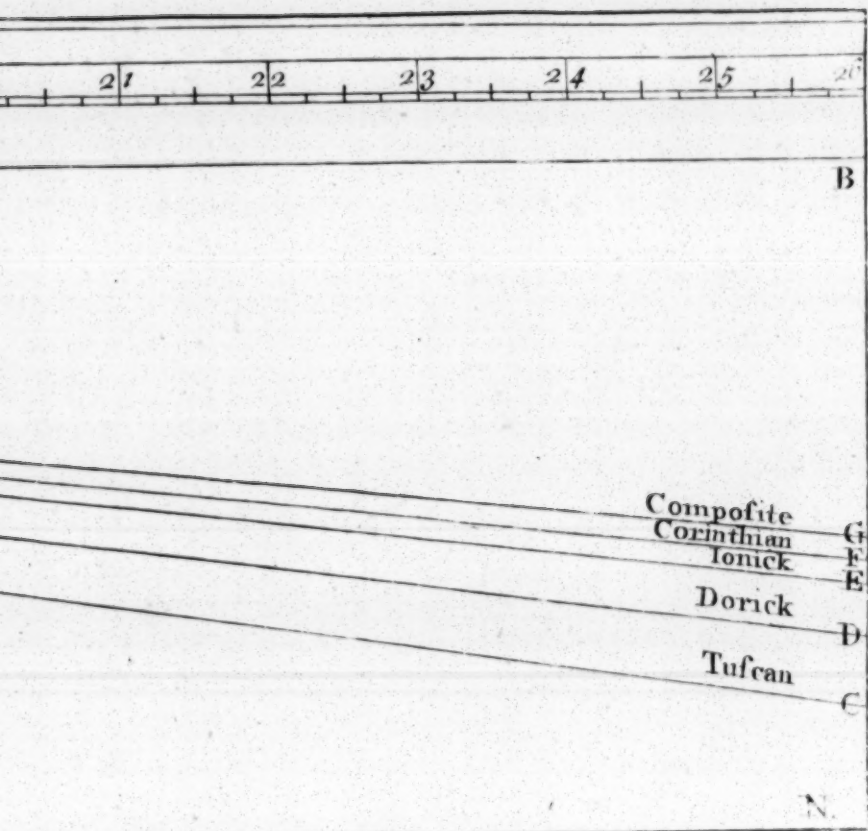
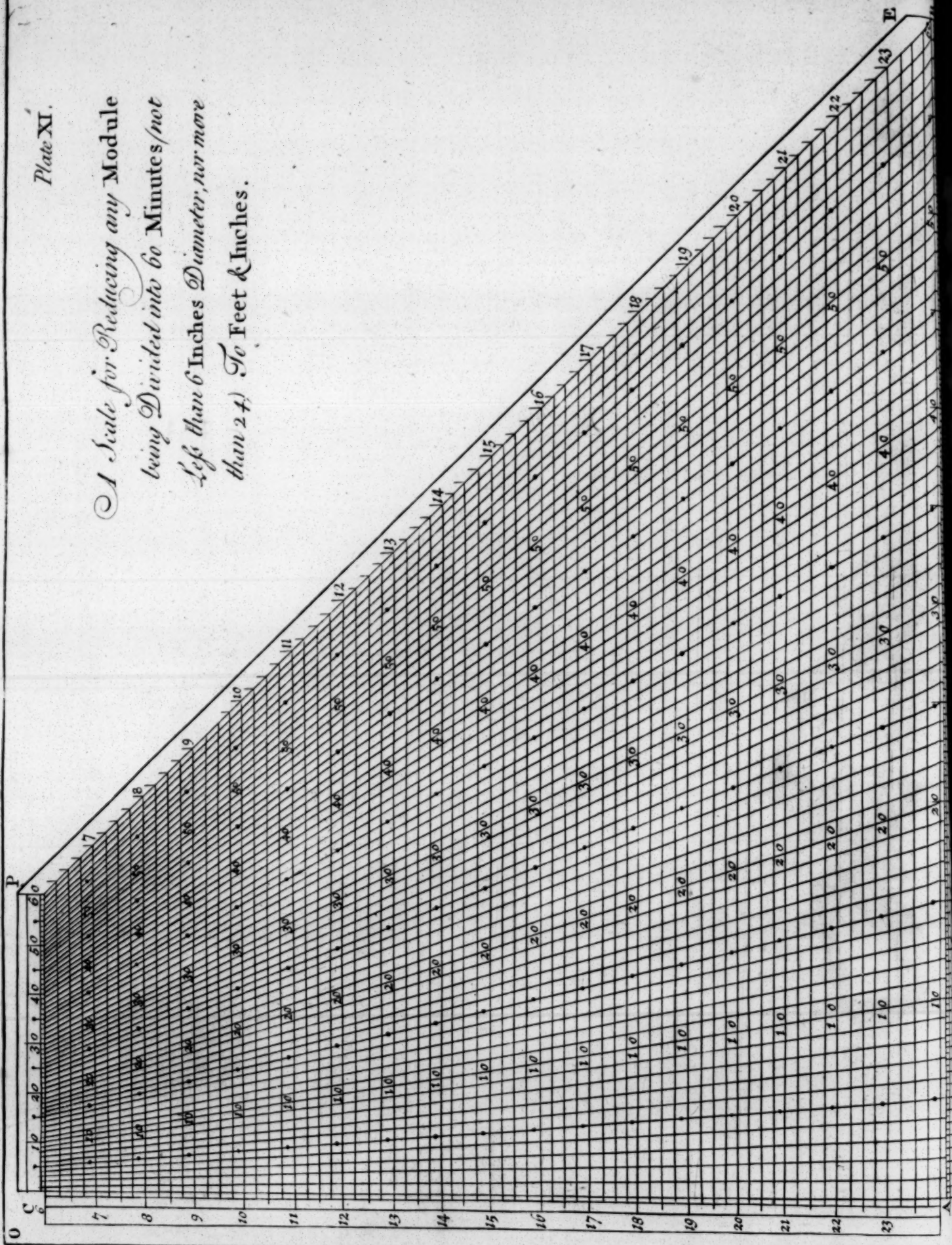




Plate XI.

*A Scale for Reducing any Module
being Divided into 60 Minutes (not
Less than 6 Inches Diameter, nor more
than 24) To Feet & Inches.*



not pull the Lines out of a Straight, and that the lower Edge of the Board FG be exactly square with the perpendicular Line AC. Next you must have a Tee-square, such a one as is used with a Draught-board; let the Blade be in Length equal to the Height GO, and as thin as it can be well made.

EXPLANATION.

The lower Scale AB, is a Scale of 2 Feet, or 24 Inches, divided into half Inches, Quarters, and half Quarters; in the same manner as the common 2 Foot Rule; and is the Scale by which the Modules are reduced to Feet and Inches. The other Scales marked on the Sides with 6, 7, 8, 9, &c. to 24, are so many Modules divided into 60 equal Parts or Minutes, and are equal to 6, 7, and 8 Inches, &c. of the lower Scale AB: The Scales between those marked with 6, 7, &c. represent Modules of $6\frac{1}{4}$ Inches, $6\frac{1}{2}$, $6\frac{3}{4}$; and the same is to be understood of any of the other Scales between 7 and 8, 9 and 10, &c.

PRACTICE.

Suppose the Module to be reduced to Inches, be 12 Inches, and it be required to know how many Inches there are in 45 Minutes. First, seek for the Module of 12 Inches in the Side AC, lay the Square to the Side GF, and slide the Square about until the Side of the Blade lies right upon 45 Minutes of the 12 Inch Module, and cast your Eye from thence to the lower Scale AB; and the same Edge of the Square that lies over 45 Minutes of the 12 Inch Module, will shew you how many Inches are contained therein, which in this Example is 9 Inches.

Again. Slide the Square to 15 Minutes, and you will find it is 3 Inches. The same Rule is to be observed in reducing any other Module; and therefore needs no more Examples.

Now since there is some Trouble in making the Tee-square, I shall give you one Example how to perform the same with only a Pair of Compasses or Dividers.

EXAMPLE.

Let it be required to reduce a Module of 16 Inches to Inches, and to know the Height of the Frize in the *Doric* Order in
O
Inches;

Inches; which is 45 Minutes in Height. *Practice.* Seek for the Module of 16 Inches, and placing one Foot of the Compasses on the Line *ae*, extend the other to 45 Minutes, and that Extent applied to the lower Scale A B, will shew that 45 Minutes, the Height of the Frize, is equal to 12 Inches, as was required.

CH A P. XI.

The Description and Use of a Scale for dividing a Module into Minutes.

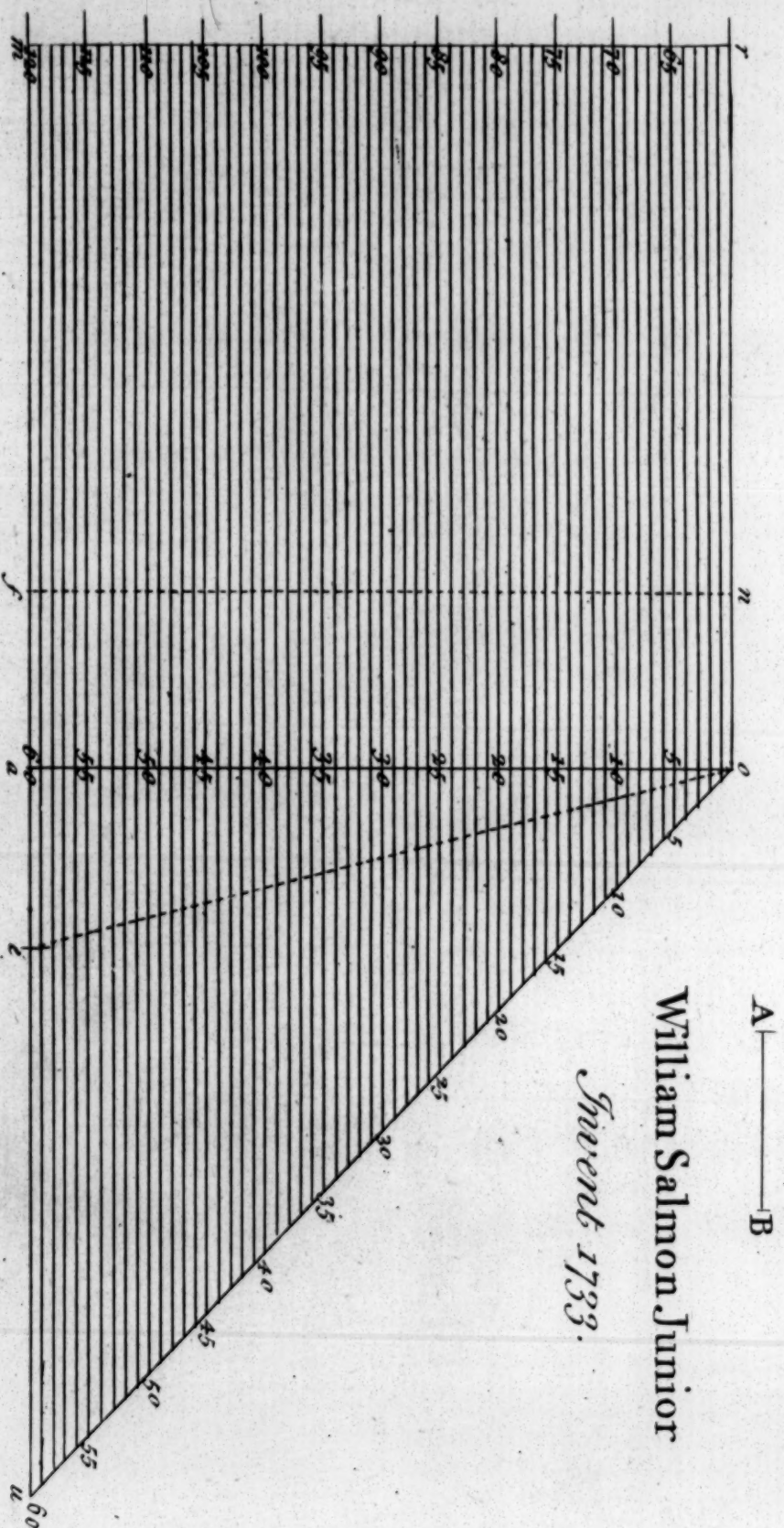
P L A T E XII.

THE Line *au* is divided into 60 equal Parts, by the 60 equidistant parallel Lines that cut the Diagonal Line *ou*; and is one of the biggest Modules that can be made use of in Drawing an entire Order upon a Sheet of the largest Paper, *am* is equal to *au*, so that *um* is equal to two Modules or 120 Minutes. Now suppose it were required to take off from this Module 20 Minutes, seek for 20 on the perpendicular Line *ao*, and set therein one Foot of the Compasses, and on the same parallel Line extend the other Foot to 20 on the Diagonal *ou*, and the Distance then between your Compasses will be 20 Minutes of the Module *au*, as required. Again, Let it be required to take off from thence 80 Minutes. Now, as I said before, the Distance *am* is equal to *au*, therefore, of Consequence, all the parallel Lines contained between the Perpendiculars *ao*, and *mr*, are equal to (*au*), one Module or 60 Minutes, therefore to take off 80 Minutes, you must seek for 80 on the Perpendicular *mr*, and therein set one Foot of the Compasses, and extend the other on the same parallel Line to 20 on the Diagonal Line *ou*, and you have your Desire. 'Tis needless to give any more Examples in a Thing that at first Sight appears so plain.

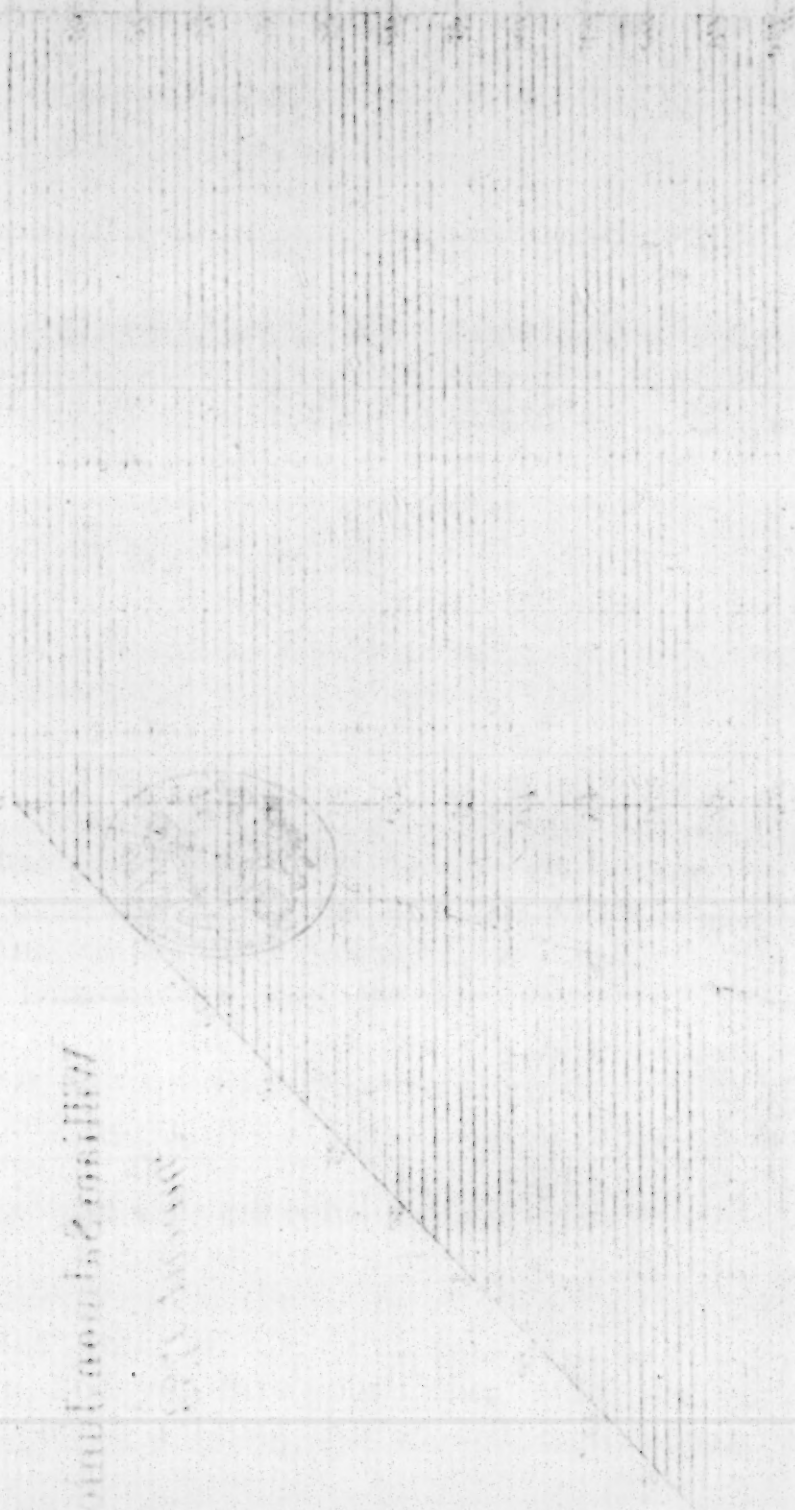
I shall therefore in the next Place proceed to shew that by this Scale any other Module that is less than *au*, may readily be divided into 60 Minutes; and from thence it will appear that this Scale is general and universally useful.

E X A M P L E.

A General Scale for the ready Dividing of Modules into Minutes.



General Rules for the method of dividing of Globules into Zones



William Jones Junor

1780



An Inspectional Table, shewing the exact Module or Diameter, for Erecting either Columns or Pilasters in true Proportion according to any of Five Orders in Architecture and to any Height required; in all the Variety of Cases that can possibly happen in Practice																											
The height of the Column in Feet and Inches.		Tuscan.					Doric.					Ionic.					Corinthian.					Composite					
		Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.		Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.		Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.		Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.		Column alone.	Column & Entablature	Column, Entablature & Pedestal.	Column & Pedestal.		
F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.	F.	I.
5.	0	8.9	6.13	5.9	6.10	7.8	6.0	4.14	5.13	6.10	5.9	4.7	5.2	6.5	5.3	4.4	4.14	6.0	5.0	4.0	4.0	6.0	5.0	4.0	4.0	6.0	5.0
6.	0	9.0	7.3	6.13	7.0	7.14	6.4	5.1	6.1	7.0	5.13	4.10	5.6	6.10	5.7	4.8	5.2	6.15	5.12	4.11	5.6	6.15	5.12	4.11	5.6	6.15	5.12
7.	0	9.13	7.14	6.6	7.10	8.10	6.14	5.9	6.11	7.10	6.6	5.1	5.14	7.4	6.0	4.14	5.10	8.1	6.12	5.1	5.10	8.1	6.12	5.1	5.10	8.1	6.12
8.	0	10.4	8.4	6.11	8.0	9.0	7.3	5.13	6.15	8.0	6.11	5.5	6.3	7.9	6.4	5.1	5.14	9.0	7.3	6.0	4.13	9.0	7.3	6.0	4.13	9.0	7.3
9.	0	10.11	8.9	6.15	8.5	9.6	7.8	6.1	7.4	8.5	6.15	5.8	6.7	8.14	6.9	5.5	6.2	9.12	8.3	6.13	5.8	9.12	8.3	6.13	5.8	9.12	8.3
10.	0	11.2	8.15	7.1	8.10	10.2	8.1	6.9	7.13	9.0	7.9	6.0	6.15	9.12	7.1	5.11	6.10	10.5	8.8	7.1	5.11	10.5	8.8	7.1	5.11	10.5	8.8
11.	0	12.0	9.9	7.13	9.5	10.8	8.6	6.13	8.2	9.5	7.13	6.3	7.3	10.1	8.6	6.12	7.13	11.2	9.9	7.13	6.3	11.2	9.9	7.13	6.3	11.2	9.9
12.	0	12.6	9.15	8.2	9.10	10.14	8.11	7.0	8.7	10.0	8.2	6.7	7.7	10.6	8.11	7.0	8.1	11.0	10.6	8.11	7.0	11.0	10.6	8.11	7.0	11.0	10.6
13.	0	12.13	10.5	8.6	10.0	11.4	9.0	7.3	8.11	10.5	8.6	6.10	7.11	11.0	9.3	7.7	8.9	11.5	10.1	8.6	6.12	11.5	10.1	8.6	6.12	11.5	10.1
14.	0	13.4	10.10	8.11	10.5	12.0	9.9	7.12	9.4	10.10	8.15	7.1	8.3	11.0	9.3	7.5	8.7	12.0	11.0	9.3	7.5	12.0	11.0	9.3	7.5	12.0	11.0
15.	0	14.2	11.4	9.3	11.0	12.6	9.14	8.0	9.9	11.0	9.3	7.5	8.7	11.5	9.8	7.8	8.11	12.5	11.5	9.8	7.8	12.5	11.5	9.8	7.8	12.5	11.5
16.	0	14.9	11.10	9.8	11.5	13.2	10.3	8.4	9.13	11.5	9.8	7.8	8.11	12.0	10.0	8.0	9.4	13.0	12.0	10.0	8.0	13.0	12.0	10.0	8.0	13.0	12.0
17.	0	15.6	12.5	10.0	12.0	14.4	11.6	9.4	11.0	13.0	11.2	8.14	10.4	13.5	11.6	9.1	10.8	14.0	13.0	11.2	8.14	14.0	13.0	11.2	8.14	14.0	13.0
18.	0	16.11	13.6	10.13	13.0	15.0	12.0	9.12	11.10	13.5	11.2	8.14	10.4	14.0	11.1	9.5	10.12	14.5	13.5	11.1	9.5	14.5	13.5	11.1	9.5	14.5	13.5
19.	0	17.2	13.11	11.2	13.5	15.6	12.4	10.0	11.14	14.0	11.2	8.14	10.4	14.5	12.0	9.8	11.0	15.0	14.0	11.2	8.14	15.0	14.0	11.2	8.14	15.0	14.0
20.	0	17.9	14.1	11.6	13.10	15.12	12.9	10.3	12.3	14.0	11.1	9.5	10.12	14.5	12.0	9.8	11.0	15.5	14.5	11.0	11.9	15.5	14.5	11.0	11.9	15.5	14.5
21.	0	18.0	14.7	11.11	14.0	16.2	13.1	10.7	12.7	14.5	12.0	9.8	11.0	15.0	12.4	10.0	11.14	16.0	15.0	12.2	14.7	16.0	15.0	12.2	14.7	16.0	15.0
22.	0	18.6	14.12	12.0	14.5	17.0	14.1	11.7	13.10	16.0	13.6	10.10	12.6	16.0	13.5	11.1	12.14	16.5	15.0	12.3	15.1	16.5	15.0	12.3	15.1	16.5	15.0
23.	0	18.13	15.1	12.4	14.10	17.4	13.12	11.3	13.5	16.5	14.1	11.7	13.10	16.5	14.1	11.7	13.10	17.0	16.5	14.1	11.7	17.0	16.5	14.1	11.7	17.0	16.5
24.	0	19.4	15.7	12.9	15.0	18.0	14.6	11.11	13.14	17.0	14.6	11.11	13.14	17.0	14.6	11.11	13.14	17.5	16.0	13.6	10.10	17.5	16.0	13.6	10.10	17.5	16.0
25.	0	19.11	15.13	12.14	15.5	18.6	15.0	12.2	14.7	17.5	15.5	12.13	10.3	11.13	17.5	15.5	12.13	18.0	17.5	15.5	12.13	18.0	17.5	15.5	12.13	18.0	17.5
26.	0	20.2	16.2	13.2	15.10	19.0	15.4	12.6	14.12	18.0	15.4	12.6	14.12	18.0	15.4	12.6	14.12	18.5	18.0	15.4	12.6	18.5	18.0	15.4	12.6	18.5	18.0
27.	0	20.9	16.7	13.6	16.0	19.4	15.9	12.10	15.2	18.5	15.9	12.10	15.2	18.5	15.9	12.10	15.2	19.0	18.5	15.9	12.10	19.0	18.5	15.9	12.10	19.0	18.5
28.	0	21.0	16.12	13.11	16.5	19.8	16.3	12.11	15.7	19.0	16.3	12.11	15.7	19.0	16.3	12.11	15.7	19.5	19.0	16.3	12.11	19.5	19.0	16.3	12.11	19.5	19.0
29.	0	21.6	17.2	13.15	16.10	20.0	16.8	12.12	16.4	19.5	16.8	12.12	16.4	19.5	16.8	12.12	16.4	20.0	19.5	16.8	12.12	20.0	19.5	16.8	12.12	20.0	19.5
30.	0	21.13	17.8	14.3	17.0	20.4	17.3	12.13	16.9	19.8	17.3	12.13	16.9	19.8	17.3	12.13	16.9	20.5	19.8	17.3	12.13	20.5	19.8	17.3	12.13	20.5	19.8
31.	0	22.4	18.4	14.8	17.5	20.8	17.8	12.14	17.4	20.2	17.8	12.14	17.4	20.2	17.8	12.14	17.4	21.0	20.2	17.8	12.14	21.0	20.2	17.8	12.14	21.0	20.2
32.	0	23.2	18.9	15.1	18.0	21.0	18.1	12.15	17.7	20.4	18.1	12.15	17.7	20.4	18.1	12.15	17.7	21.5	20.4	18.1	12.15	21.5	20.4	18.1	12.15	21.5	20.4
33.	0	23.9	19.4	15.5	18.5	21.4	18.6	12.16	18.0	20.8	18.6	12.16	18.0	20.8	18.6	12.16	18.0	22.0	20.8	18.6	12.16	22.0	20.8	18.6	12.16	22.0	20.8
34.	0	24.6	19.9	16.0	19.0	21.8	19.1	12.17	18.5	21.2	19.1	12.17	18.5	21.2	19.1	12.17	18.5	22.5	21.2	19.1	12.17	22.5	21.2	19.1	12.17	22.5	21.2
35.	0	24.13	20.5	16.4	19.5	22.0	19.4	12.18	18.8	21.6	19.4	12.18	18.8	21.6	19.4	12.18	18.8	23.0	21.6	19.4	12.18	23.0	21.6	19.4	12.18	23.0	21.6
36.	0	25.4	20.10	16.9	19.10	22.4	19.9	12.19	19.3	22.0	19.9	12.19	19.3	22.0	19.9	12.19	19.3	23.5	22.0	19.9	12.19	23.5	22.0	19.9	12.19	23.5	22.0
37.	0	26.2	21.5	17.0	20.5	22.8	20.4	12.20	19.8	22.4	20.4	12.20	19.8	22.4	20.4	12.20	19.8	24.0	22.4	20.4	12.20	24.0	22.4	20.4	12.20	24.0	22.4
38.	0	26.9	22.1	17.4	20.10	23.2	20.9	12.21	20.3	22.8	20.9	12.21	20.3	22.8	20.9	12.21	20.3	24.5	22.8	20.9	12.21	24.5	22.8	20.9	12.21	24.5	22.8
39.	0	27.0	21.10	17.9	21.0	23.6	21.4	12.22	20.8	23.2	21.4	12.22	20.8	23.2	21.4	12.22	20.8	25.0	23.2	21.4	12.22	25.0	23.2	21.4	12.22	25.0	23.2
40.	0	27.6	21.15	17.14	21.5	24.0	21.9	12.23	21.3	23.6	21.9	12.23	21.3	23.6	21.9	12.23	21.3	25.5	23.6	21.9	12.23	25.5	23.6	21.9	12.23	25.5	23.6
41.	0	27.13	22.4	18.2	21.10	24.4	22.4	12.24	21.8	24.0	22.4	12.24	21.8	24.0	22.4	12.24	21.8	26.0	24.0	22.4	12.24	26.0	24.0	22.4	12.24	26.0	24.0
42.	0	28.4	22.10	18.6	22.0	24.8	22.9	12.25	22.3	24.4	22.9	12.25	22.3	24.4	22.9	12.25	22.3	26.5	24.4								

E X A M P L E.

Let the right Line A B be a Line given to be divided into 60 equal Parts or Minutes.

P R A C T I C E.

Take between your Compasses the Length of the given Line A B, and set one Foot of the Compasses in the Point *a*, and with that Distance make 2 Points on the Line *u m*, as at *e* and *f*; draw the perpendicular Line *f n*, and the Diagonal Line *o e*; then will the given Line A B be divided into 60 equal Parts by the Diagonal Line *o e*, as was required; and to make use of it is the same as is taught above, and needs no Repetition. It is best to draw the Lines *o e* and *n f*, &c. with a Blacklead Pencil, because those Lines are easily rubbed out when you have done making use of them, with a crumb of Bread.

C H A P. XII.

Description and Use of the TABLE for finding the Diameter, in Proportion to any Height of Columns or Pilasters, throughout all the Five Orders in ARCHITECTURE.

P L A T E XIII.

THE first Column towards the Left-hand, is the Height of the Column or Pilaster, in Feet, and Inches, from 5 to 20 Feet high in a gradual Ascent of 3 Inches. On the top of the Table is writ the Names of the Five Orders, viz. *Tuscan*, *Doric*, *Ionic*, *Corinthian*, and *Composite*, and shews how many Heads in the Table goes to each Order, which is four Heads to each Order; and right under *Tuscan*, *Doric*, &c. is writ the Variety of Cases that the Diameter is calculated to, viz. to the Column alone; the Column and Entablature; Column, Entablature, and Pedestal; and the Column and Pedestal only.

These are all the Variety of Cases that can possibly happen in Practice. In each Column there are two Rows of Figures; the first of which are Inches, and the other so many 16ths of an Inch.

EXAMPLE.

Let it be required to find the Diameter for erecting the *Doric* Column with its Entablature, to a limited Height of 8 Feet 6 Inches. Seek in the first Column for 8 Feet 6 Inches; also on the Top of the Table, under *Doric*, for Column and Entablature, and in the Angle of meeting you will find there set down 10, 3, which signifies 10 Inches and 3 Sixteenths of an Inch; which is the exact Diameter in Proportion to the limited Height required.

Proceed in the same Manner for any other Order in any Case whatever.

Note. That if you require the Diameter to any Height greater or less than is in the Table, proceed in this Manner. If the Height is greater than any in the Table, seek for a Diameter to half that Height; and, when found, double the Diameter, and the Product is the Diameter sought.

Again; If the Height is less than any in the Table, seek for a Diameter, double the Height, and take half thereof for the Diameter sought, and you have your Desire.

CHAP. XIII.

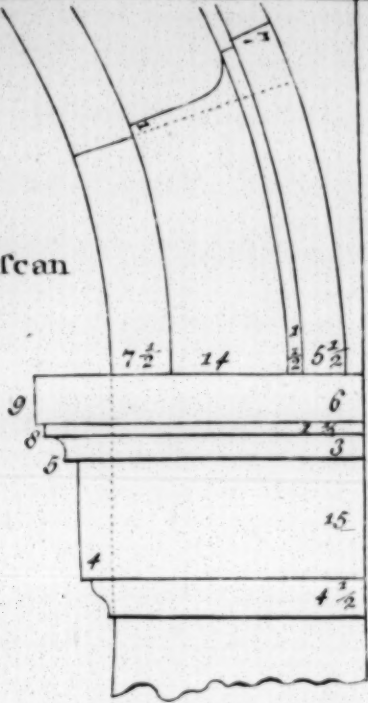
PLATE XIV.

SHEWETH the Imposts and Architrave to Arches of the *Tuscan*, *Doric*, *Ionic*, *Corinthian*, and *Composite* Orders of Architecture.

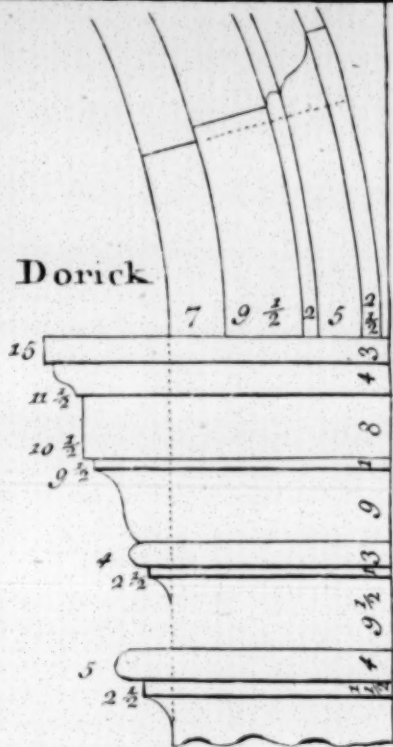
Also the Method of describing the several Sorts of Mouldings made use of in Architecture, the Manner of doing which are sufficiently made appear by the Figures themselves, and needs no other Explanation.

CHAP.

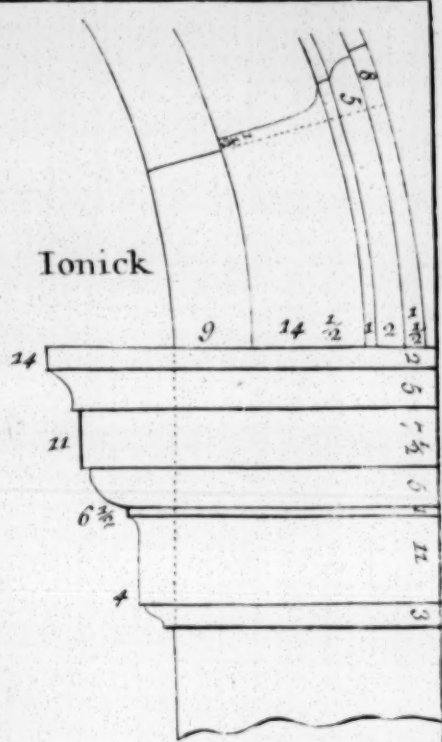
Tuscan



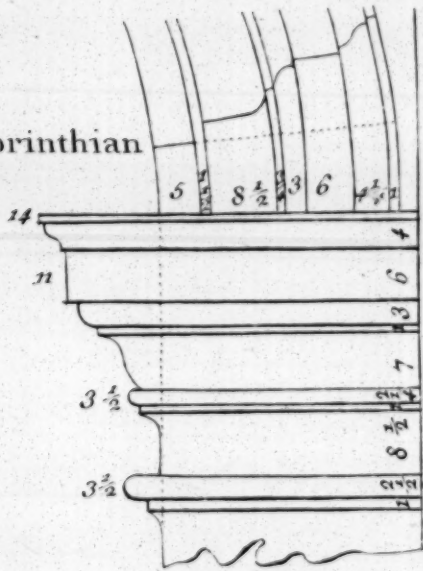
Dorick



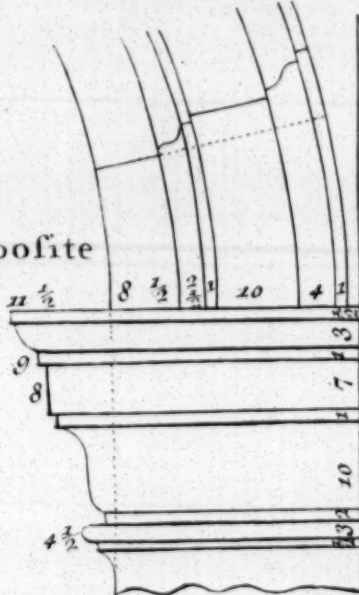
Ionick



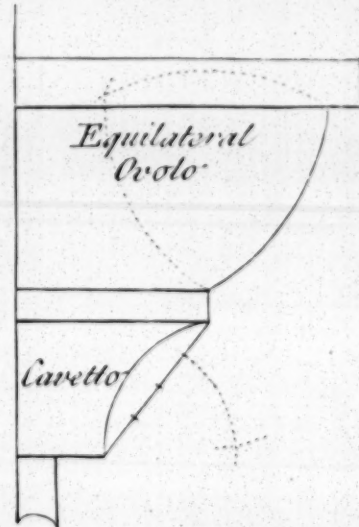
Corinthian



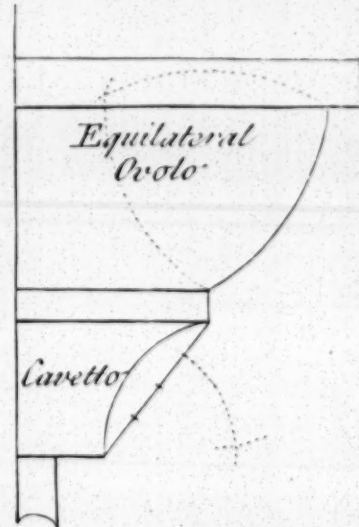
Composite



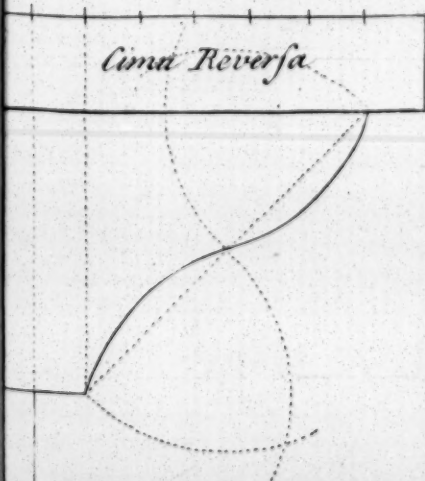
Equilateral Ovolo



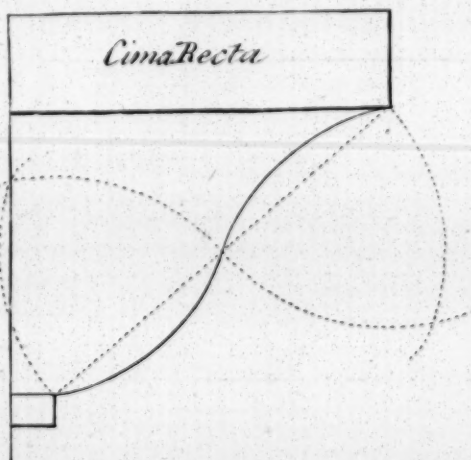
Cavetto



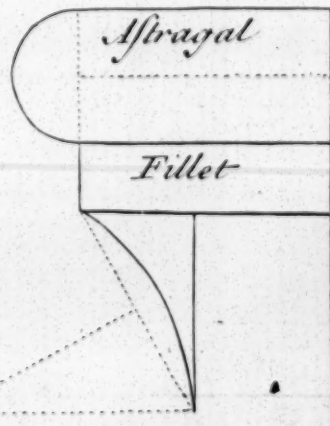
Cima Reversa



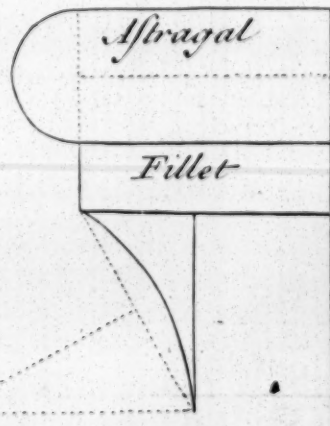
Cima Recta



Astragal

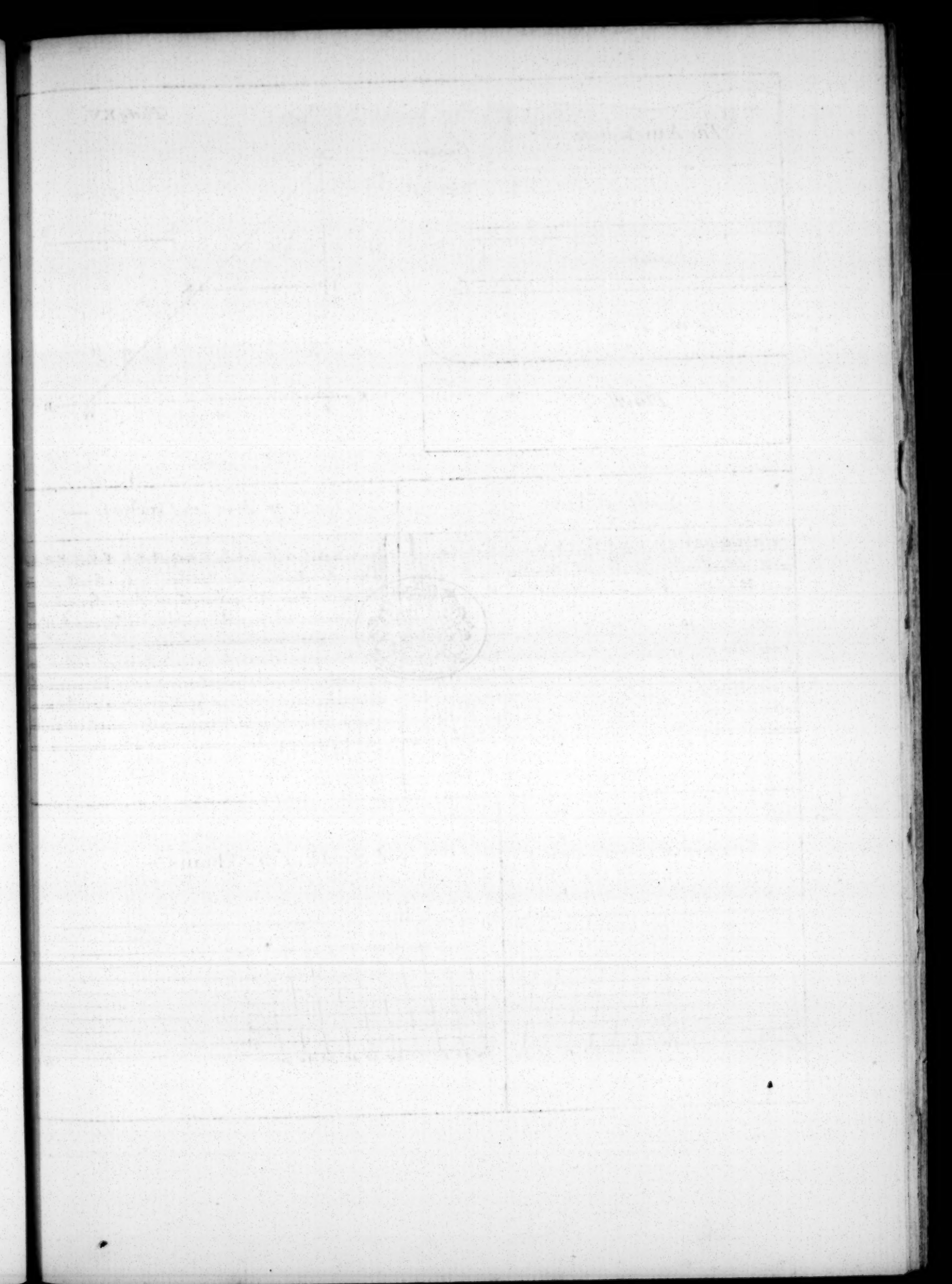


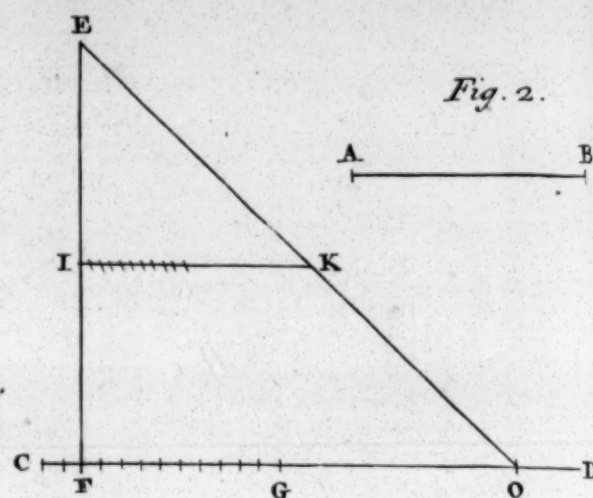
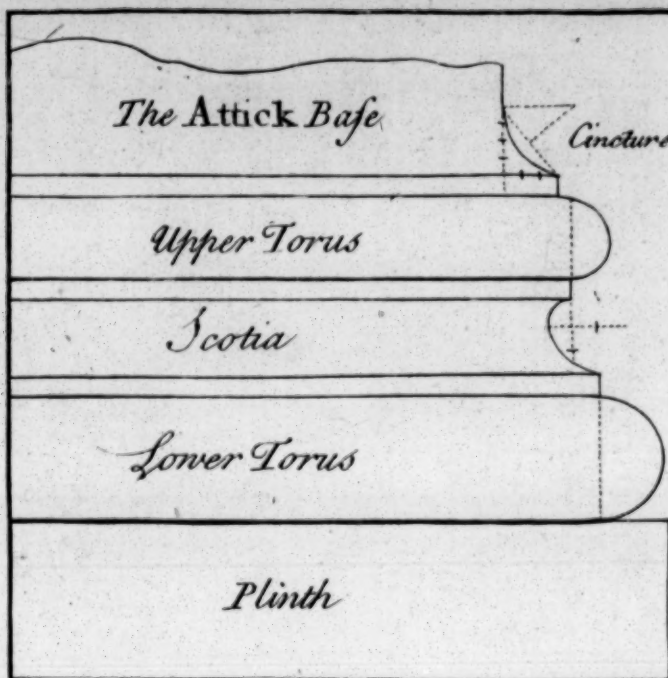
Fillet



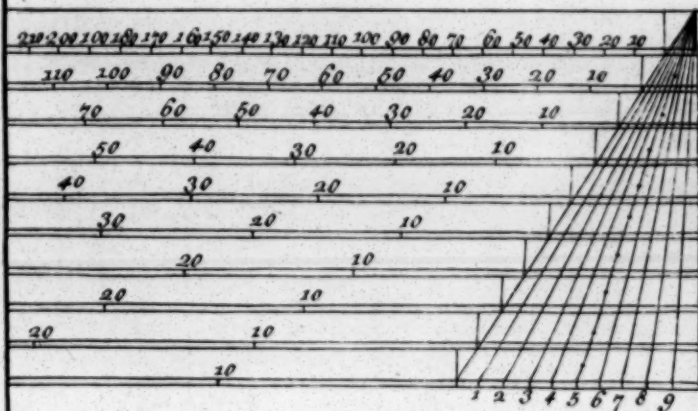
THE
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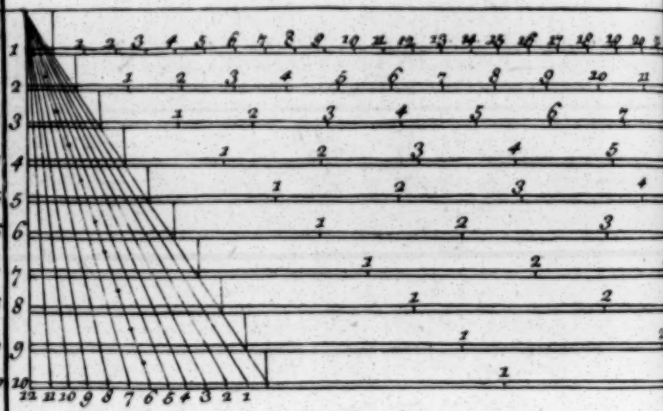




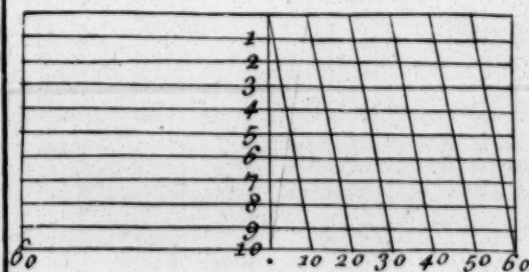
Scales of Feet



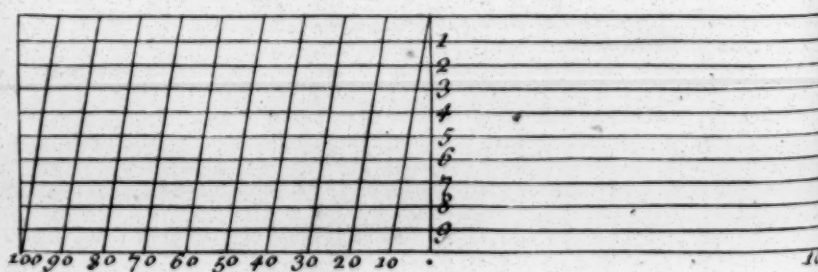
Scales of Feet and Inches —



A Scale of two Modules



A Scale of two Chains —



C H A P. XIV.

Of making divers Scales, &c.

P L A T E XV.

HOW to divide a given Line into any Number of Feet and Inches.

Let it be required to divide the Line A B, *Fig. 2.* into one Foot 10 Inches.

O P E R A T I O N.

Draw a right Line at Pleasure, as C D, and with any small Opening of the Compasses, set thereon 12 equal Parts, as from C to G; take between your Compasses those 12 Divisions C G, and set it on from G to O; erect the Perpendicular F E on the 10th Division from G, and equal in Length to F O, and draw the Diagonal Line E O: Take between your Compasses the Length of the given Line A B, and setting one Foot of the Compasses on the Point E, with the other make a Mark on the Perpendicular E F, as at I, draw the Line I K parallel to the Line C D, and it will be equal in Length to the given Line A B; and if you lay a Ruler from the Point E, and over each of the ten Divisions from G to F, and making a Mark by the Side of the Rule, cross the Line I K for each Division, it will divide the given Line into one Foot 10 Inches as required. And the like of any other.

The Scales of Feet; of Feet and Inches; the Scale of Modules; and Scale of Chains, are here laid down to shew the Way and Manner of making such Scales which may be understood almost by Inspection; but a careful Examination will render them very easy.

These Sorts of Scales are the best, and most commodious of any that are required in Drawing.

CHAP. XV.

Of Flutes and Fillets of Columns and Pilasters.

P L A T E XVI.

1. **O**f the Doric Order.] The Doric Column is often fluted without Fillets, and hath twenty in Number; but a Pilaster in this Order, as well as the Ionic, Corinthian and Composite, ought to have but seven Flutes and eight Fillets. The Proportion that the Fillets bear to the Flutes is one to three.

Fig. 1. Shews the manner of describing and dividing the Flutes of such Columns as are fluted without Fillets, and the Center for striking the Flutes two different Ways, the one from the Corner of an equilateral Triangle as *d*, and the other from the Center of a Geometrical Square, as *f*, the whole Column being first divided into 20 equal Parts, as is shewn by the dotted Lines to the Center of the Semicircle.

2. *Of the Ionic Column.*] It is from this Order that the Flutings first were taken which were originally made to represent the Folds of Garments. This Order hath 24 in Number, and they are thus formed. Divide the whole Circumference into 24 equal Parts, as is shewn in Fig. 2. by the dotted Lines to the Center; and for the Breadth of Flutes and Fillets, you must divide one of those as *ae* into 8 equal Parts, giving 6 of those Parts to every Flute, and 2 to every Fillet, as plainly appears by the Perpendiculars raised from thence. They are in depth half their breadth, being a Semicircle formed on the Centers *a* and *e*. Sometimes they are made with an inverted Part of a Circle, as *b*, as high from the Base as to the Diminution of the Column which is $\frac{1}{3}$ of the Shaft; the Center is taken at the Depth of the Semicircle, as *c*, these are called Cabled Flutings, the Rounds representing a Rope or Cable laid into the Flute.

3. Of

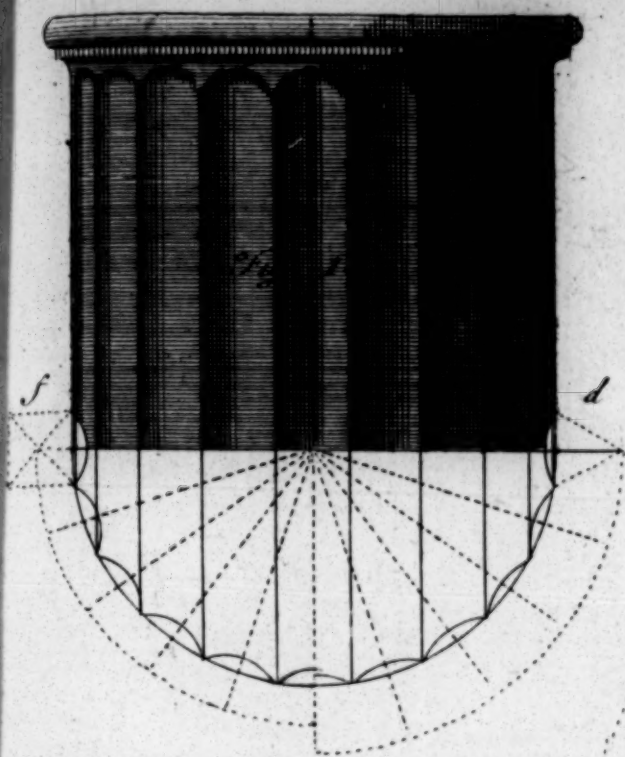
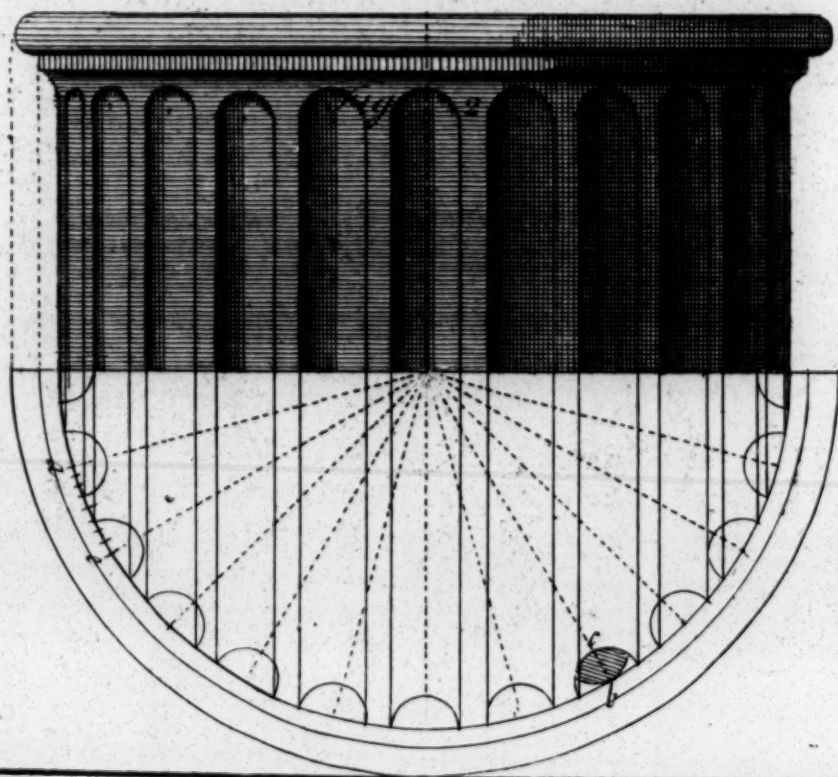
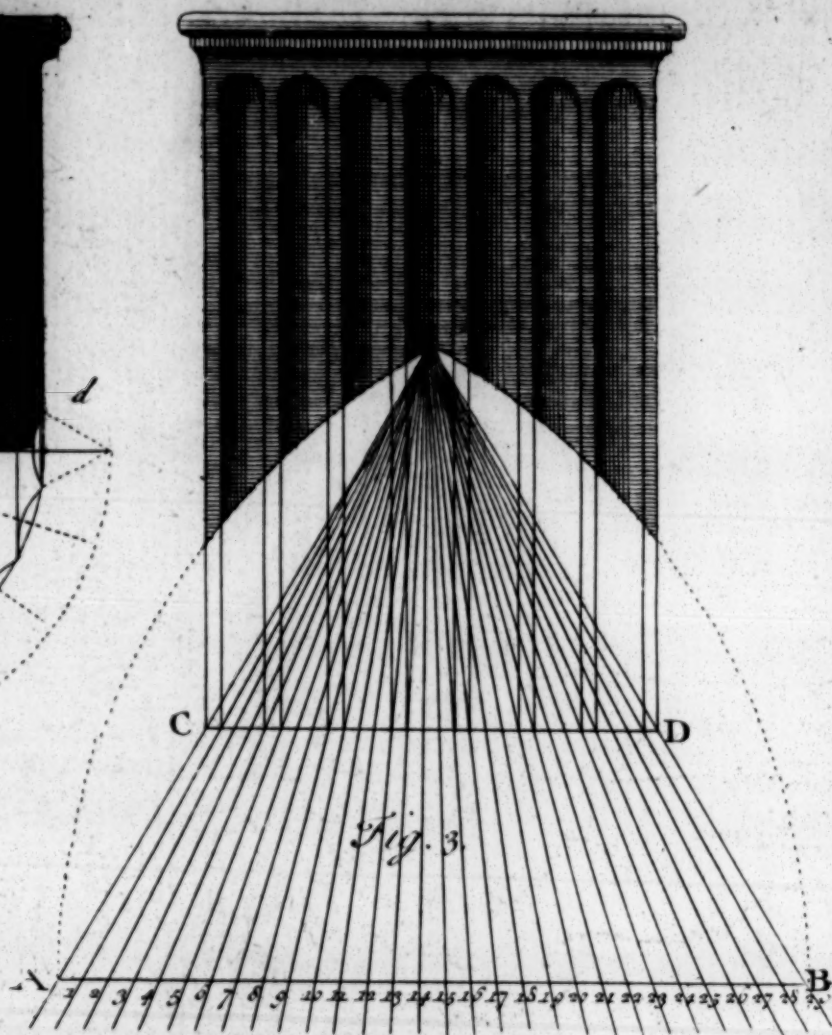
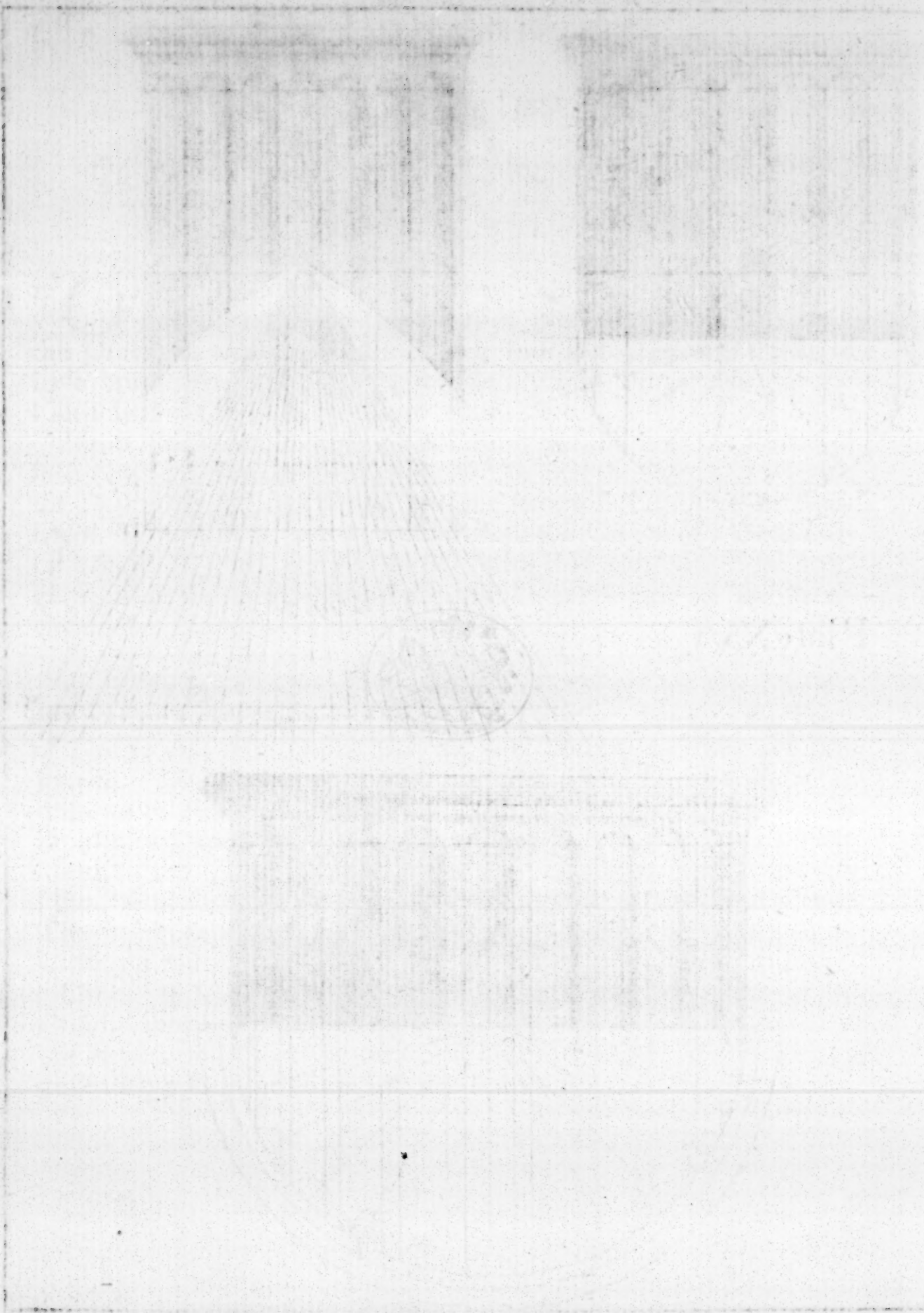


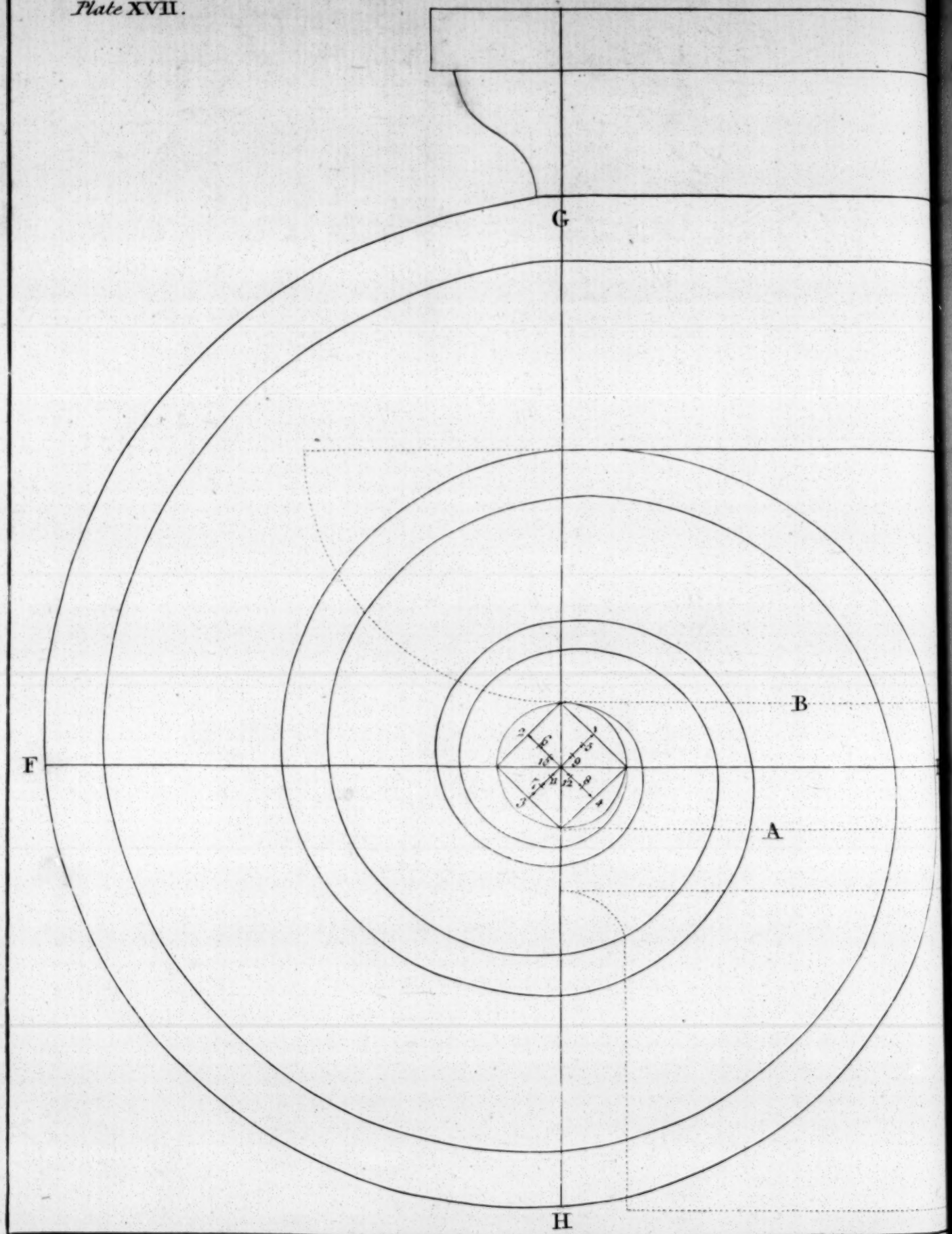
Plate XVI



B. Cole Sculp



1877



3. *Of the Corinthian Column.*] The Number of Flutes generally allowed to this Order, are also twenty Four, as in the foregoing, and sometimes on account of the Compass and Station of the Column, the Flutes may be augmented to thirty in the Circumference. They are of a semicircular Form.

4. *The Composite Column is fluted the same as the Corinthian.*] To divide a Pilaster into its Flutes and Fillets: Let the Line A B, Fig. 3 represent the Breadth of a Pilaster to be divided into its Flutes and Fillets, divide the Line A B into 29 equal Parts, giving three to every Flute, and one to every Fillet, so will the Pilaster be divided into seven Flutes and eight Fillets.

If you make with the Line A B an equilateral Triangle, and from the Point E draw Lines through every Division of the Line, A B, it will make a Scale ready for the Division of any other Pilaster, as appears by the Line C D, and the Pilaster raised thereon.

CH A P. XVI.

To describe the I O N I C Volute.

P L A T E XVII.

FIRST, Draw the Astragal A B, and through the Middle thereof the Line E F; then from the Top of the Abacus, let fall, perpendicular to the former, another Line passing through the Center of the Circle, or Eye, of the Volute, as G H. Within this Circle are twelve Centers marked 1, 2, 3, 4, &c. to 12, on which the Contour of the Volute is described, and are thus to be found. Describe a Geometrical Square, whose Diagonals are one in the Horizontal Line, and the other in the Perpendicular Line, crossing each other in the Center of the Eye; from the Middle of the Sides of this Square draw two Lines which divide the Square into four, and each Line being divided into six Parts;

Parts, gives the twelve Centers, or Points, required, as they are numbered in the Eye of the *Volute*. To describe the *Volute*, open your Compasses from No. 1. (in the Eye of the *Volute*) to the Intersection of the Perpendicular, and the lower Part of the Abacus, and draw a Quarter of a Circle, *viz.* continue it till it meets the Horizontal Line E F.

Secondly, On the Point 2, place your Compasses, and open them to the Arch last described, and continue the Arch-Line till it meets the Perpendicular G H.

Thirdly, On the Point 3, place your Compasses, and open them to the Arch last described, and continue the Arch-Line till it meets the Horizontal Line E F.

Fourthly, On the Point 4, place your Compasses and open them to the Arch last described, and continue the Arch-Line till it meets the Perpendicular G H, and in like manner you may turn it about till you have gone through all the twelve Centers, which will describe the Contour of the *Volute* as required. The inside Line, or Border, is described by a second Draught, in the same Manner as the former, only placing the fixed Foot of the Compasses in twelve other Centers, very near the first, *viz.* at one fifth Part of the Distance that is between the former, reckoning towards the Center of the Eye; and these twelve Centers are represented by the twelve Points in the Eye of the *Volute* made larger than any other, on which the inside Line may be described as required.

C H A P. VII.

To draw an Intire Order according to the Doric Order.

P L A T E XVIII.

1. **H**AVING fastened the Paper on the Draught-Board; by the Help of your Tee-square, draw the Base Line M N, whereon the Column is to be erected.

2. Erect the perpendicular Line A B, equal to the Height you intend the Column shall be.

3. By the Help of the Scale described in *Chapter IX. Plate X.* find the Diameter to the limited Height A B, and divide it into Minutes for a Scale to work by.

4. Take your Compasses, and from your Scale take off the Height of every particular Member contained in the Entablature of the Column, and prick it on the Central Line downward from the limited Height B, towards A; as also the Heights in the Capital.

5. Take $32 \frac{1}{2}$ Minutes, the Projection of the Cima-Recta, between your Compasses, and slide the Square about until the Side thereof is right over the Point B, your Compasses having the Projection of the Cima-Recta between them; set one Foot thereof in the Point B, and your Square's Side still resting over B; with the other Foot of the Compasses make two Pricks, as C D, and draw the Line C D, the Projection of the Cima-Recta: Draw the second Line also to the same Length, through the second Point upon the Line A B. Proceed in the same Manner until you have finished all the Lines for the whole Entablature and Capital.

6. Take the whole Diameter in your Compasses, and from P measure off seven Diameters for the Length of the Shaft, which will reach down to O: From P set on the Breadth of the Astragal, and, as before taught, draw the Lines to form the Astragal.

7. Take your Compasses and set on the central Line from the Point O, the Height of every Member contained in the Base and Pedestal of the Column: Having drawn all the Lines, both parallel and upright; last of all describe the Mouldings, and delineate the Triglyphs thus; take half the Width of the Triglyphs between your Compasses, viz. 15 Minutes, and prick it down on each Side of the central Line of the Column, and draw the Out-line thereof, and for the Channels divide the Breadth of the Triglyph into 12 equal Parts, every Channel and Space between, hath two of those equal Parts, and the Semi or half Channels on the Side hath one of those Parts: The Breadth of the Gutta's that are under the Triglyphs, are equal to two of those Parts.

8. To diminish the Column.

At one third of the Height O G, draw the Line E F, and on the Point Q describe a Semicircle. Divide Q G into four equal Parts, and through those Parts draw the Lines H H, I I, K K, at pleasure, and from L draw the perpendicular Line L d; divide
P the

the Part of the Circle *d E* into four equal Parts, and draw the parallel Lines *a b c d*, so as to touch the Semicircle; then erect the perpendicular Lines *a K*, *b I*, and *c H*, and at the intersecting Points *E K I H L*, prick in Pins or Nails, and bend a thin Ruler round them, and draw by the side thereof the out-line *E L*, and it will form a true Diminution of the Column as required.

C H A P. VIII.

How to draw a Frontispiece according to any of the Five Orders.

P L A T E XIX.

E X A M P L E.

SUPPOSE the Frontispiece to be drawn by the *Doric* Order, with a Compass Pediment.

1. Draw the Base Line *A B*, and erect the perpendicular Line *I H* at pleasure, and set thereon the Height you intend the first and uppermost Member shall be of, as suppose *H*, and find the Diameter to the Height *I H*, as is taught in *Chapter X*.

2. Consider how many Triglyphs you would have placed between those over the Columns, which in this Example are three; then seek, by *Chap. VIII. Sect. II.* what must be the Intercolumniation for 3 Triglyphs between those placed over the Columns, and you will find the Intercolumniation to be 5 Diameters, that is, the Distance from the central Line *C E*, to the central Line *D F*.

3. The Intercolumniation being found, take half thereof between your Compasses, and setting one Foot in the Point *I*; make a Point both ways upon the Line *A B*, at *C* and *D*, erect the perpendicular Lines *C E* and *D F*, for the central Lines of the Columns.

4. Upon the Base Line *A B*, space out the Triglyphs thus; take 15 Minutes, the half Breadth of one of the Triglyphs between your Compasses, and prick it on both Sides of the Point *C*, as *a*, *b*, and on both Sides of the Point *I*, as *e*, *f*, and on the Point *D*, the two Points *c*, *d*: Take 45 Minutes, the Height of the Frize (which is the Breadth of the Metops) between your Compasses,

The Whole Height of the

Base 40

20

54

2

oplinth.

luna

capitulum

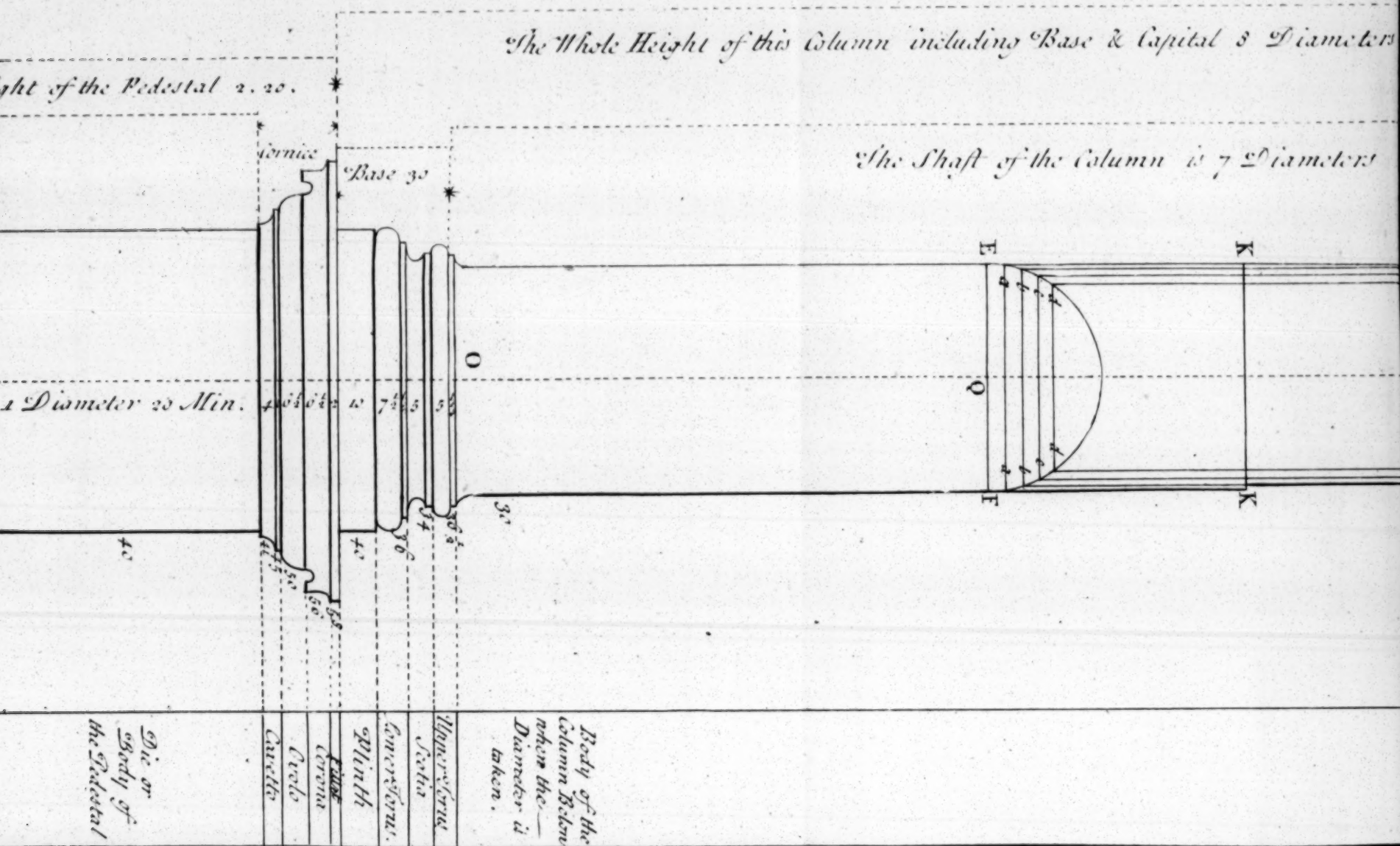
capitulum

capitulum

capitulum

capitulum

The Shaft of the Column is 7 Diameters



Entablature 12 Diameters 20 Minutes

Including Base & Capital 8 Diameters

Shaft of the Column is 7 Diameters

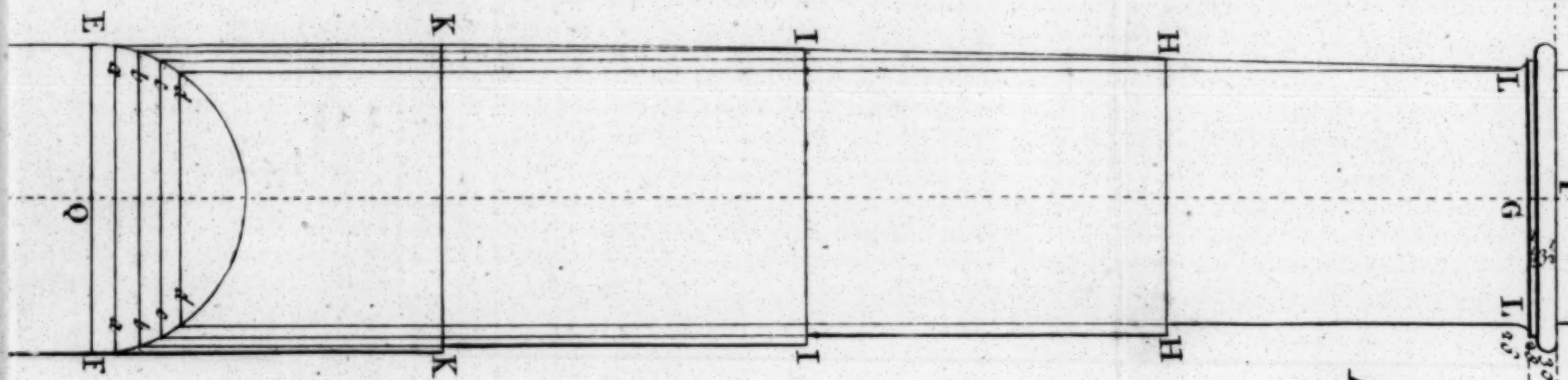
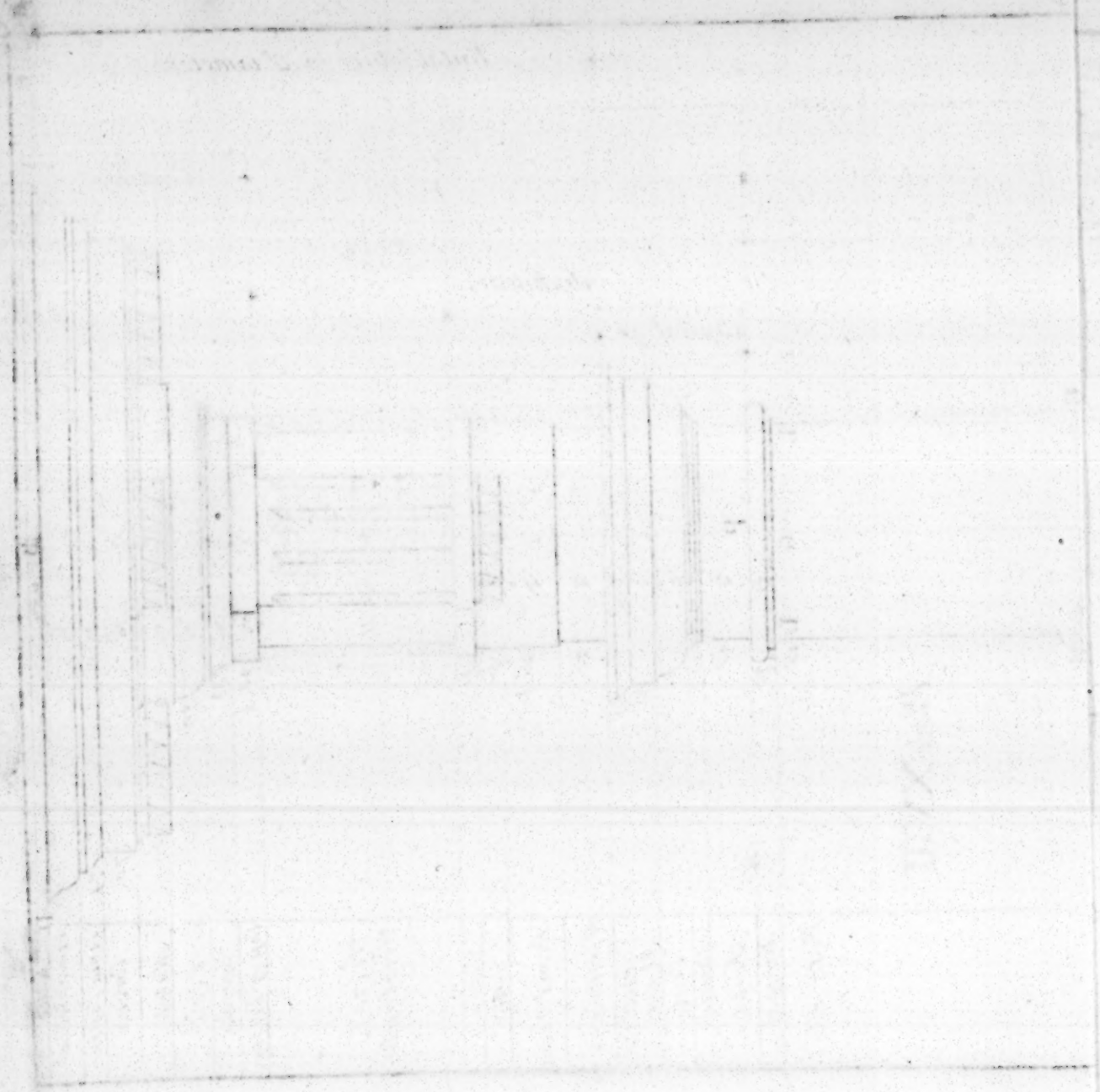
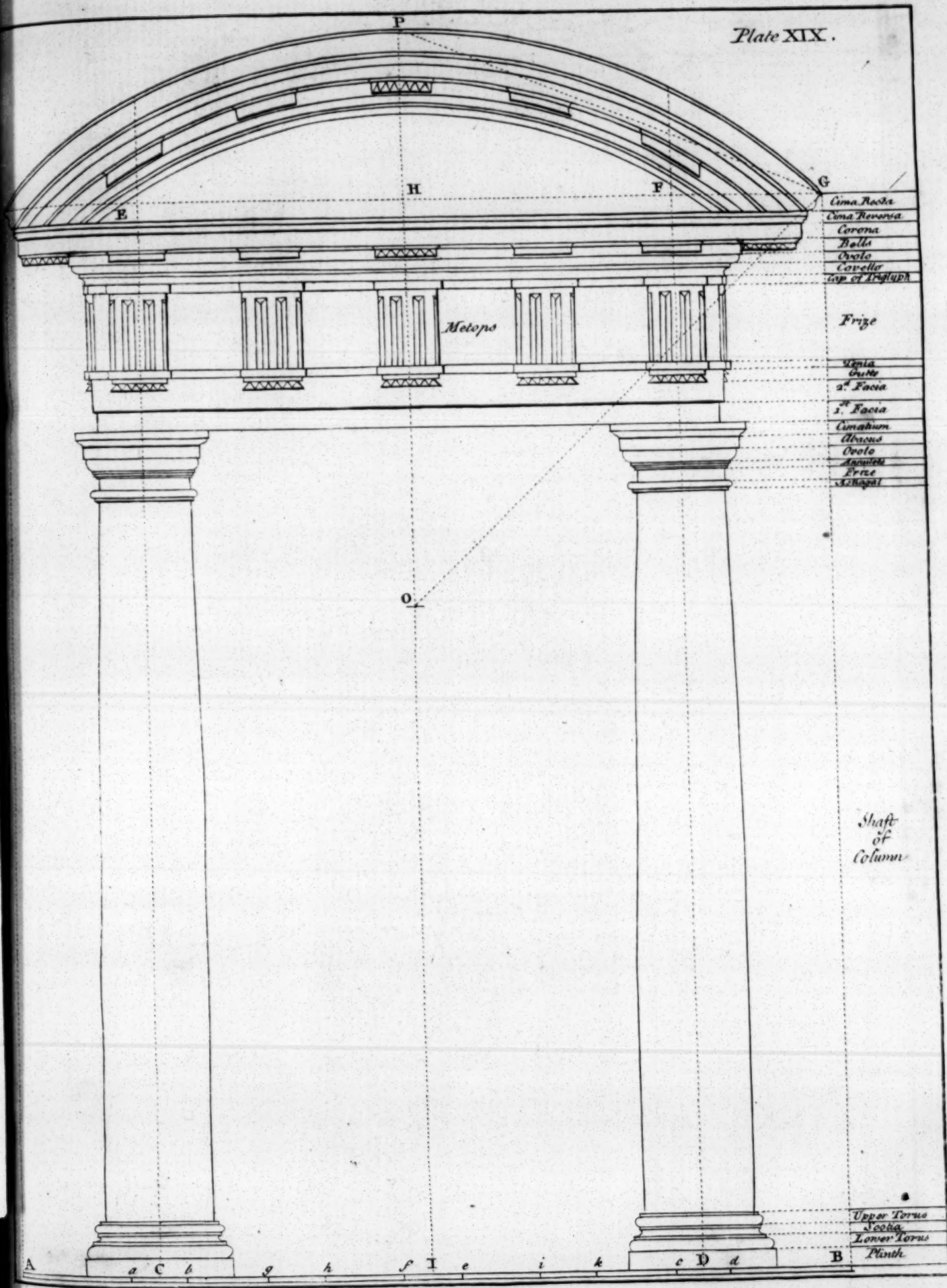


Plate XVIII

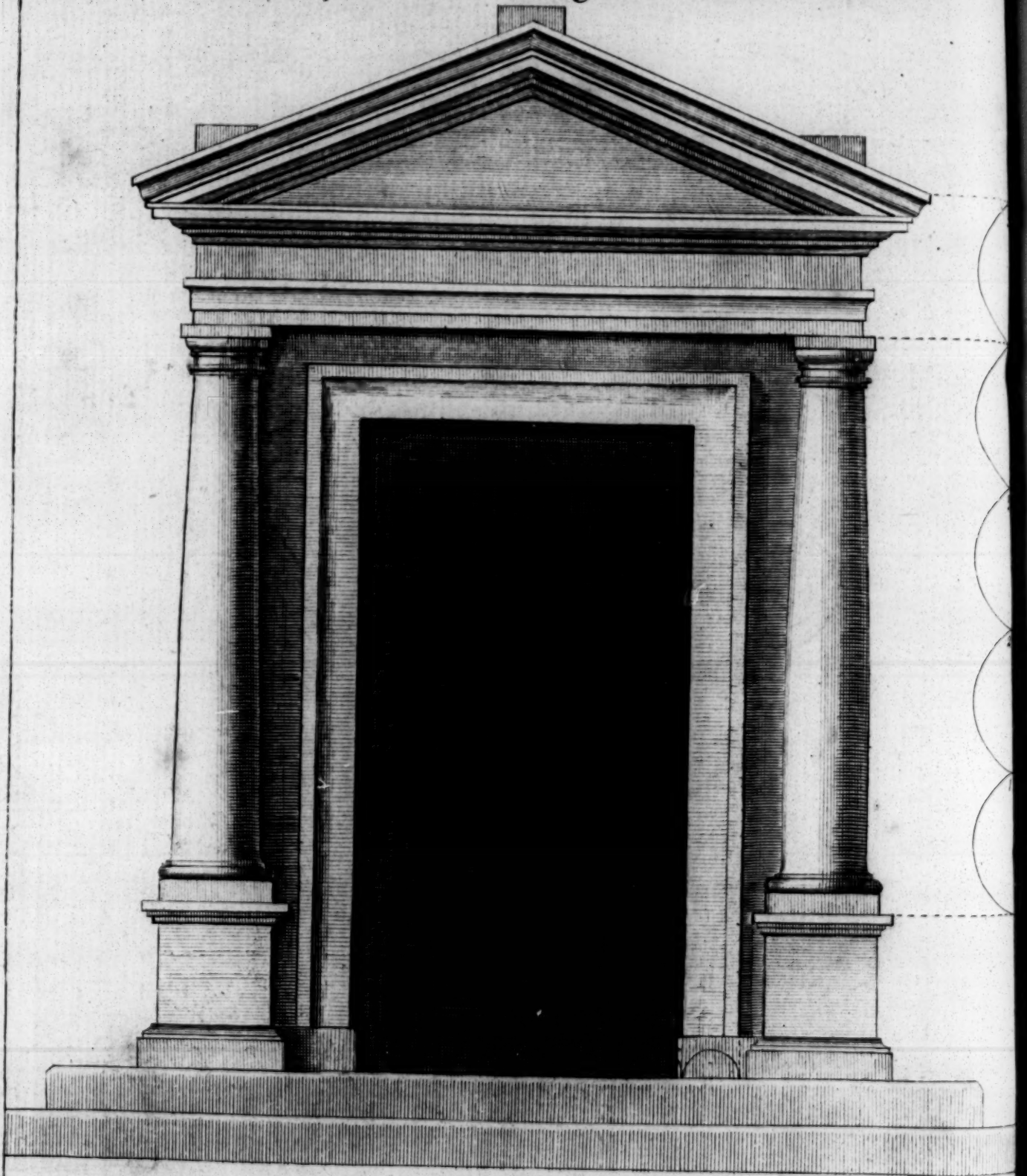
Abacus
Body above





A Frontispiece & Door of the Tuscan Order.

Plate X



E. Hoppus deli

J. Mynde sc.

Compasses, and place it from *f* to *b*, and from *e* to *i*, and from *g* to *b* is the Breadth of a Triglyph, so is also the Breadth *i k*. So have you the Base Line divided for the more ready delineating the Ornaments in the Frize.

5. Upon the central Line of the Column *C E*, from the Point *E*, prick on the Height of every Member, and when you begin to draw the Lines, omit the first two Lines that make the Square of the Cima-Recta; that is, omit drawing them with Ink, and only draw them with the Point of the Compasses, or Pencil, that they may not be discovered when your Draught is finished; and as to all the other Lines, you may proceed in Drawing of them as was directed in the foregoing Chapter; for these two upper Lines are omitted, because of the Cornice in the Pediment mitering to the level Returned Cornice.

To find the Pitch of the Pediment.

Set one Foot of the Compasses in *H*, extend the other to *G*; the Compasses still resting in *H*, turn them round to the intersecting Point *o*, for the Center of the Pediment required.

Note, 'Tis the same Rule to find the Center for a Raking Pediment, as for a Compass one, as may be seen by the dotted Line *P G*.

C H A P. XIX.

Divers other Frontispieces with their Doors.

P L A T E XX.

IS a Frontispiece and Door of the *Tuscan* Order with Columns on Pedestals, where may be observed, by the Circles, that the Height of the Door is 2 Diameters, or twice its Breadth, and the Entablature a fourth Part of the Length of the Column.

P L A T E XXI.

Is a Frontispiece and Door of the *Doric* Order, the Door is two Diameters and a fourth Part, as may be seen by the Circles; and the Entablature, a fourth Part of the Length of the Pilaster; and the Architrave a sixth Part of the Breadth of the Door.

P L A T E XXII.

Is an Entrance, or Arch, of the *Doric* Order with $\frac{3}{4}$ Columns on Pedestals; the Intercolumniation is 7 Diameters and $\frac{1}{2}$; and the Proportion of the Height of the Opening, to the Breadth, is as 5 to 3, as may be seen by the Circles.

P L A T E XXIII.

Is a Frontispiece and Door of the *Ionic* Order, with Pilasters fluted, the lower Part cabled; the Door is 2 Diameters and $\frac{1}{3}$ high; and the Entablature a fifth of the Length of the Pilaster; also the Height of the Sub-Plinth is the Diameter of the Pilaster, as may be seen by the Circles.

The Manner of Pannelling the lower Part of this Door, is exceeding strong and ornamental.

P L A T E XXIV.

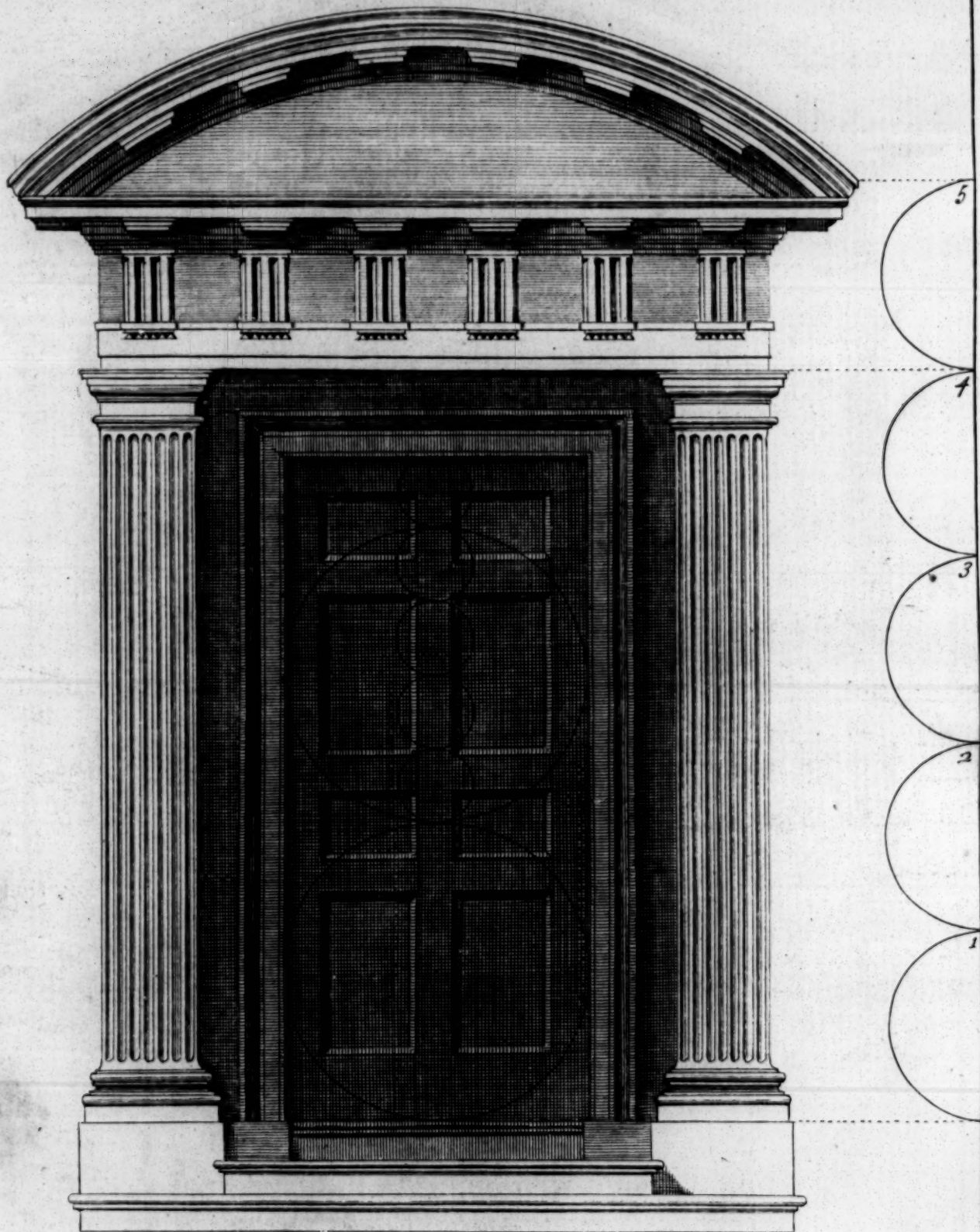
Is a Niche of the *Ionic* Order with Columns on Pedestals; the Height of the Niche is 2 Diameters and $\frac{4}{6}$; and to the Top of the Key-Stone 3 Diameters; also the Height of the Impost, Breadth of the Architrave, and Bigness of the Key-Stone, are explained by the Circles.

Here is an inverted circular Pediment, for the sake of Variety; but if not approved, take the Pitched one as shewn by the dotted Lines.

P L A T E XXV.

Is a Frontispiece and Sash-Door of the *Corinthian* Order, with Pilasters very proper for a Garden Front; the Height is 2 Diameters and

A Frontispiece & Door of the Dorick Order.



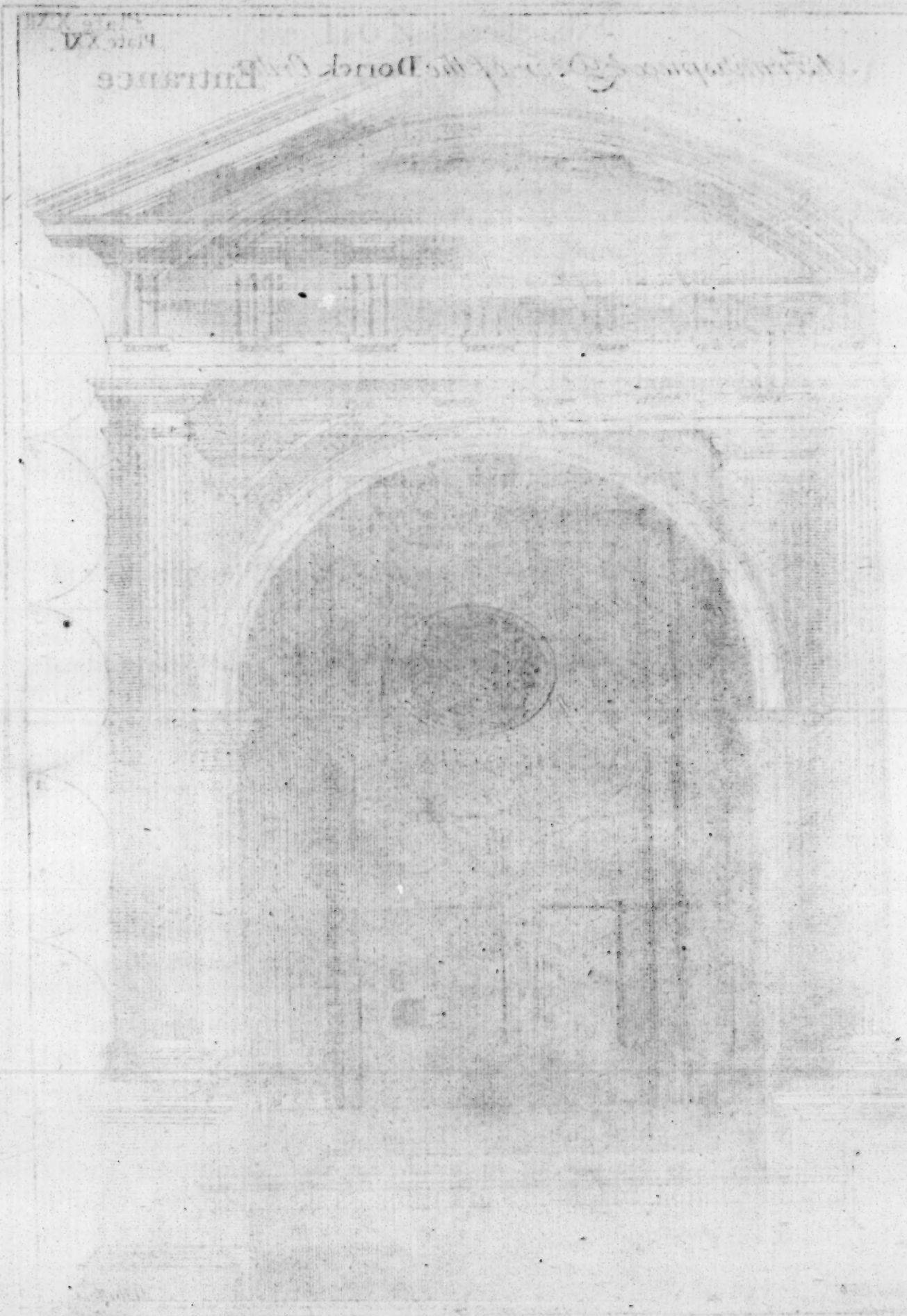


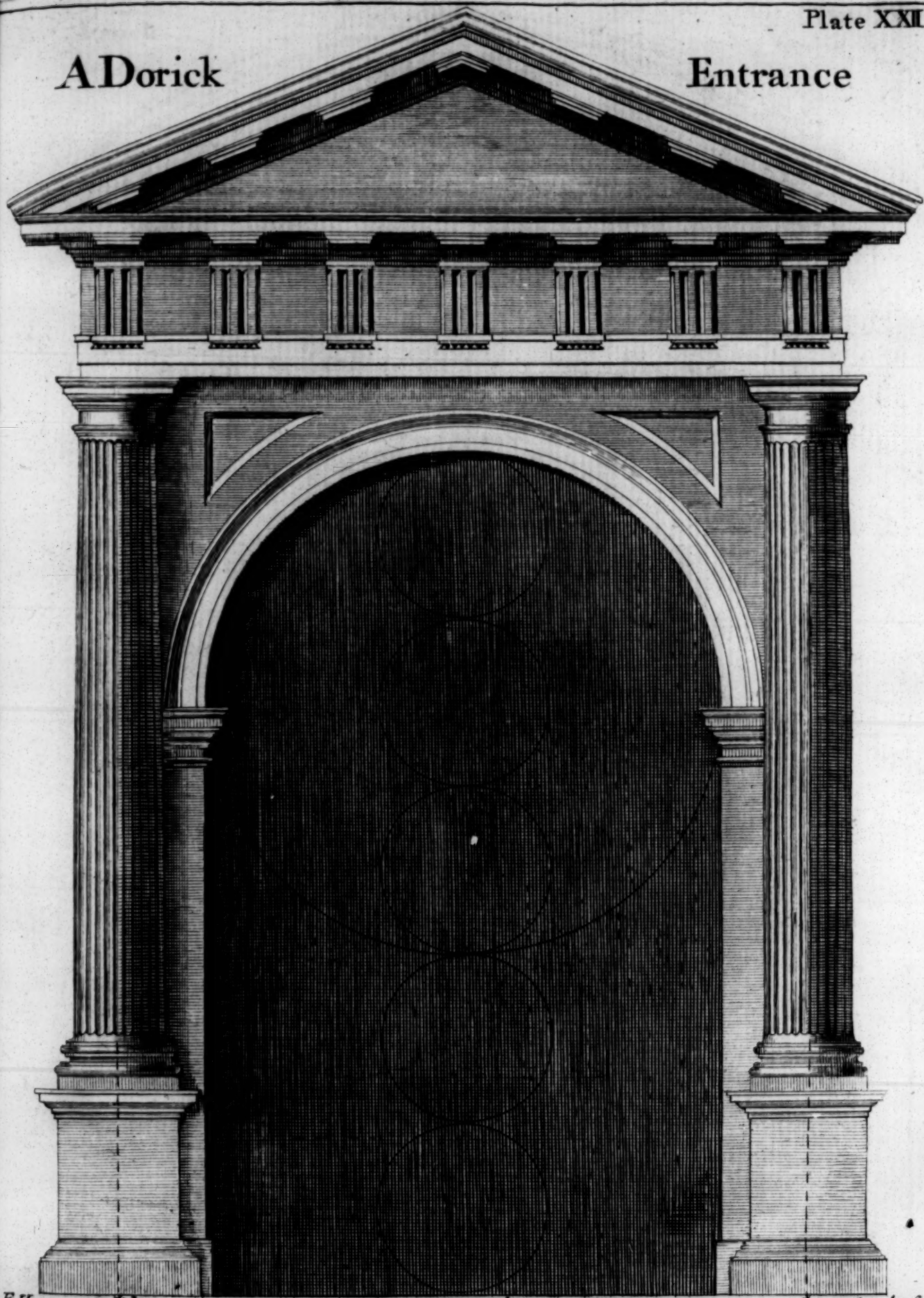
PLATE XXVII

The Temple of Apollo at Delphi

EA

A Dorick

Entrance



E. Hoppus del.

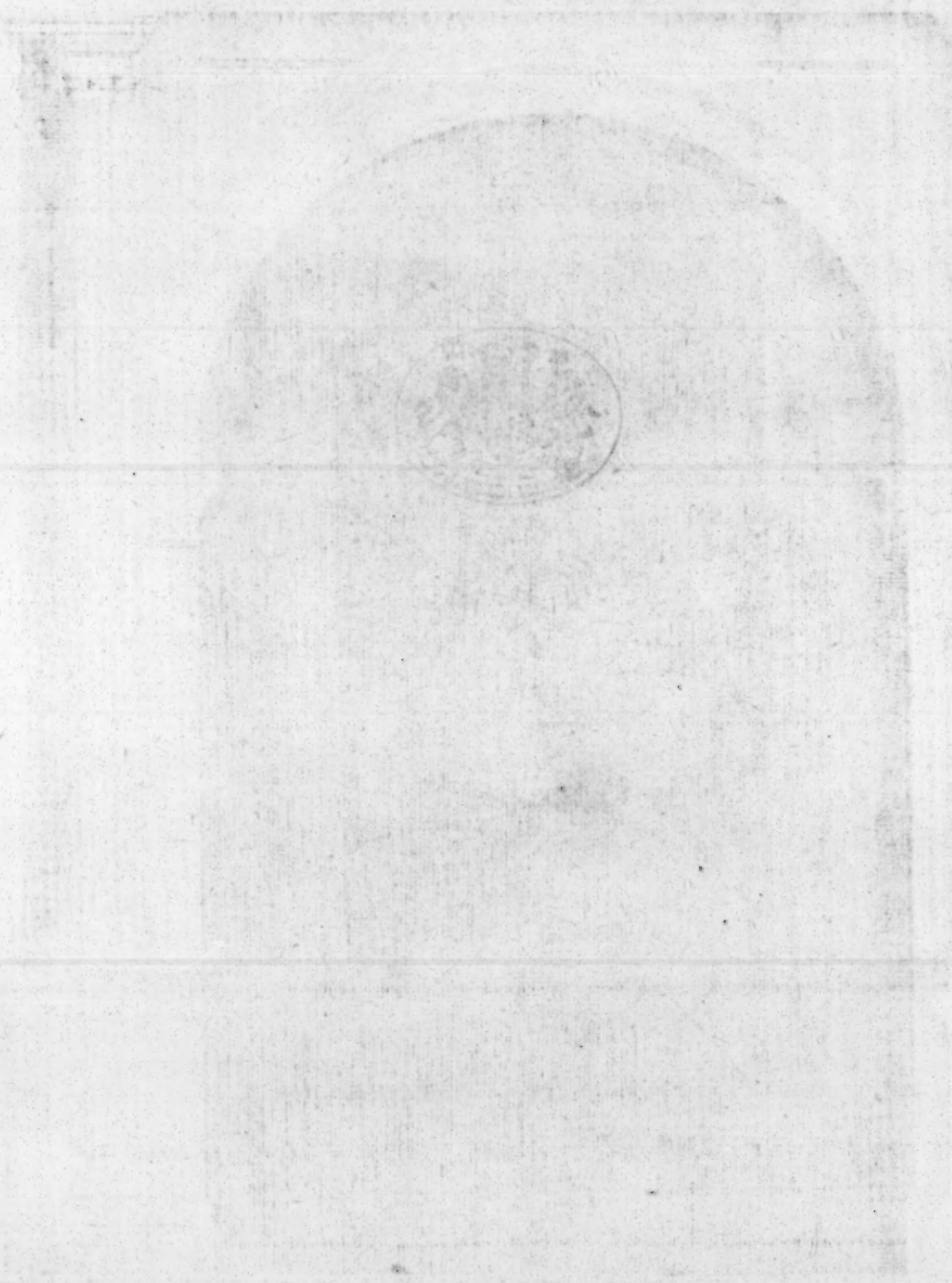
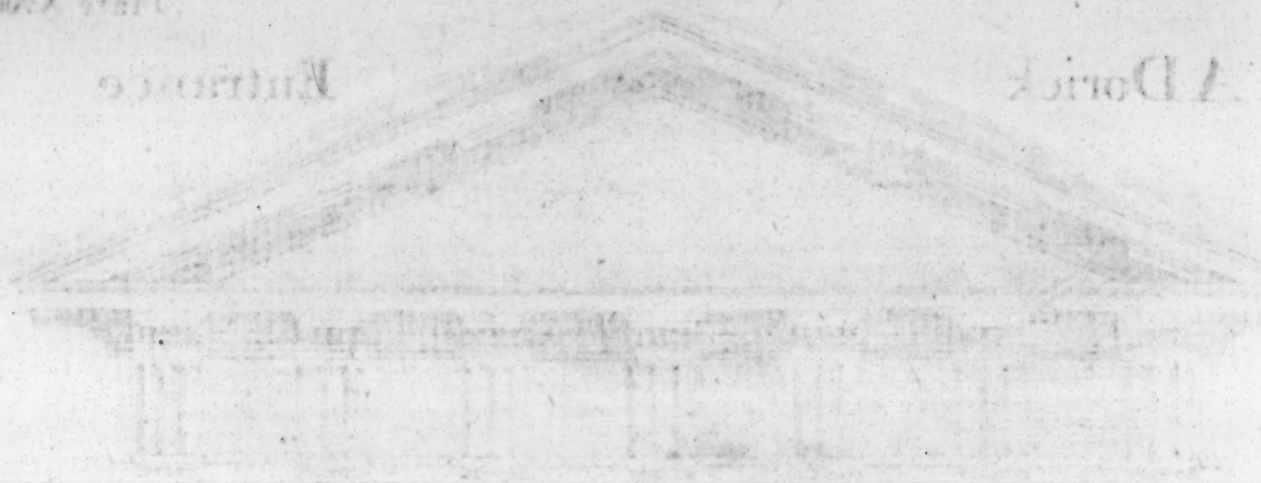
7 Diameters $\frac{1}{2}$

J. Mynde Sc.

PLATE XVII

ENTRANCE

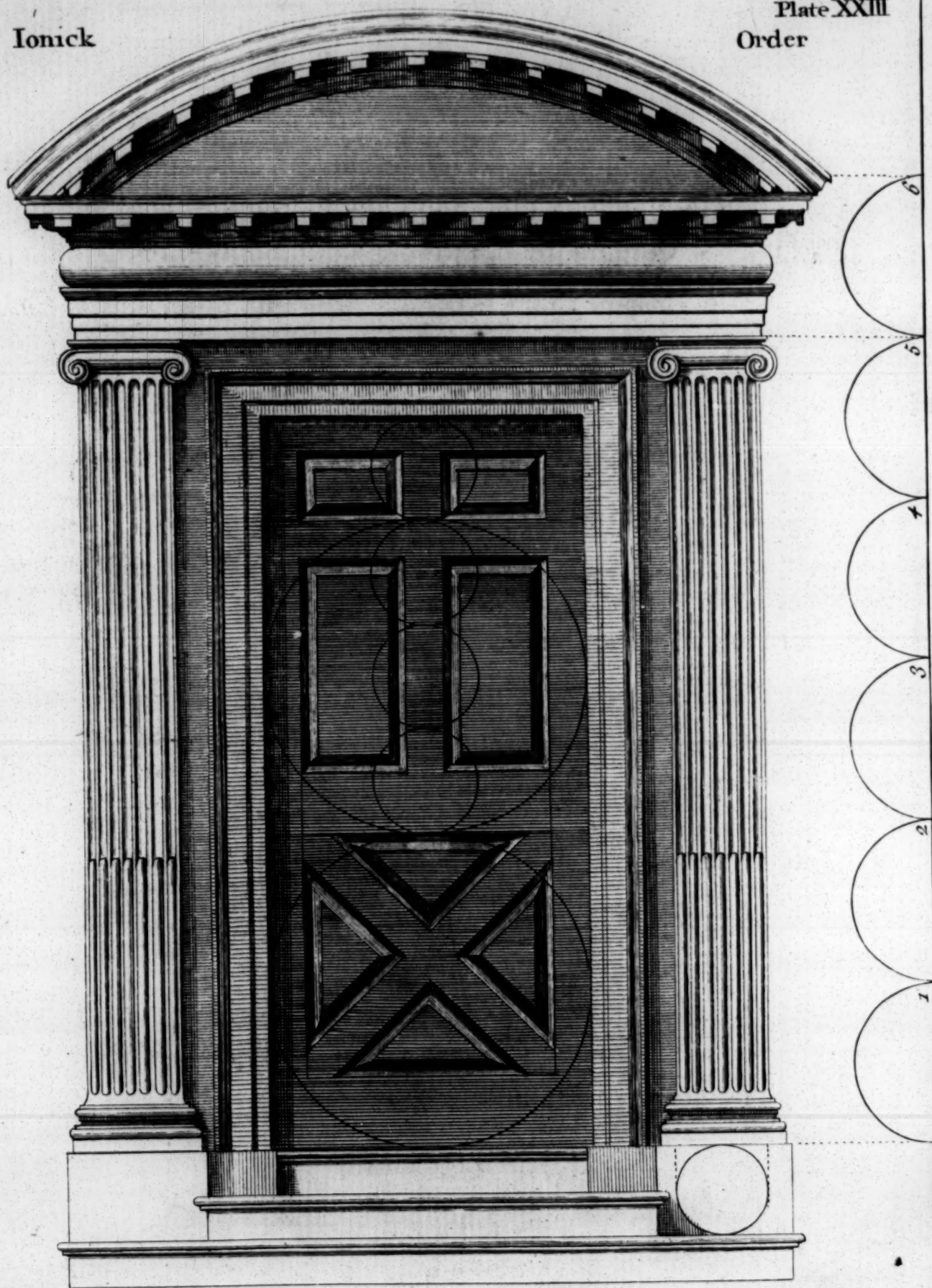
A. DORIC



E.H.

Ionick

Plate XXIII
Order

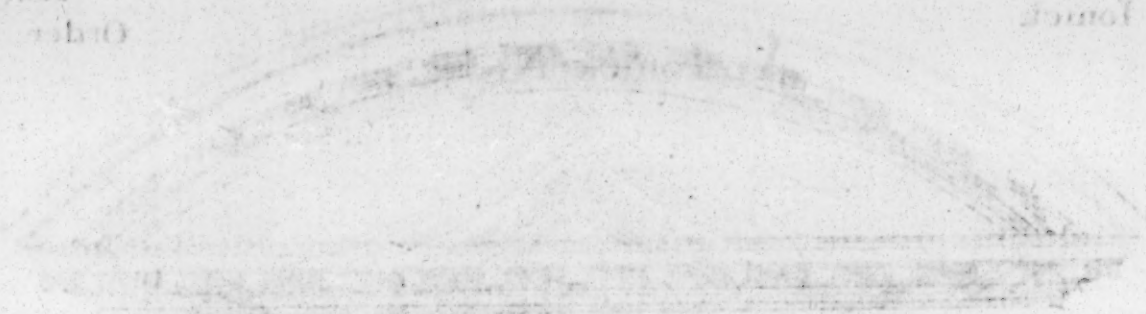


E. Hoppus deli.

J. Mynde Sc.

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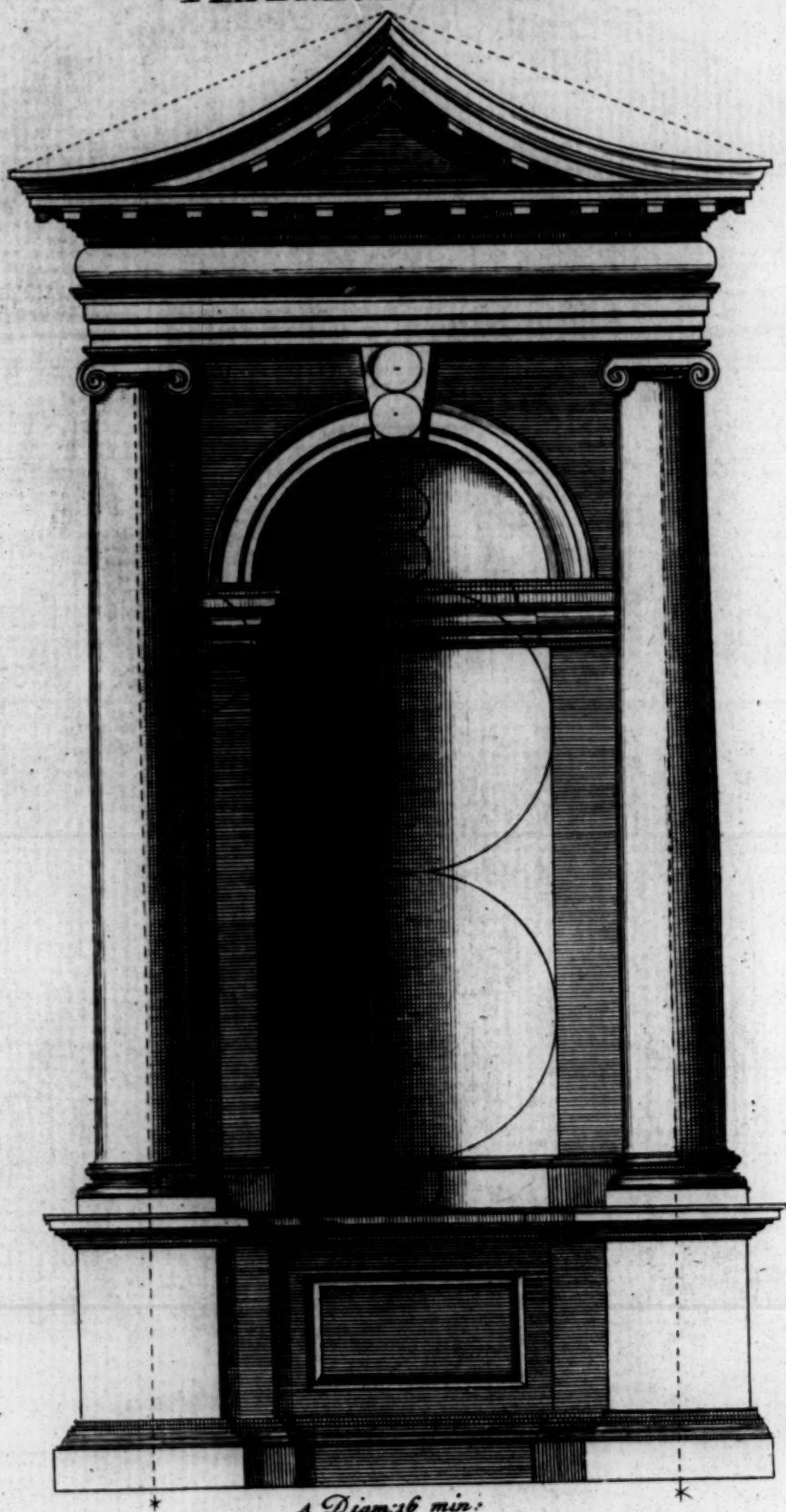
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1877

E.H.

An Ionick Niche.

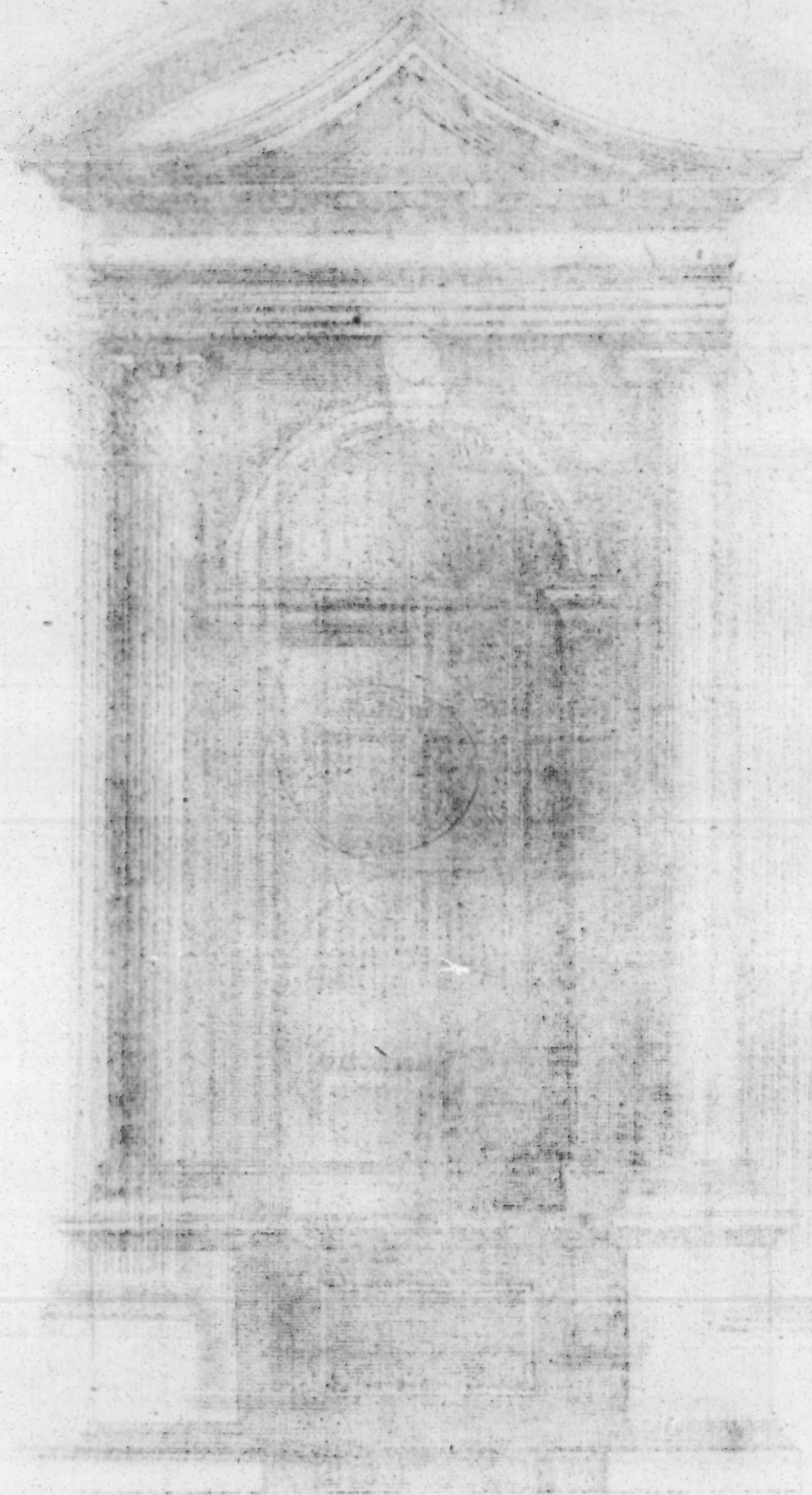


E. Hoppus. deli.

4 Diam. 16 in.

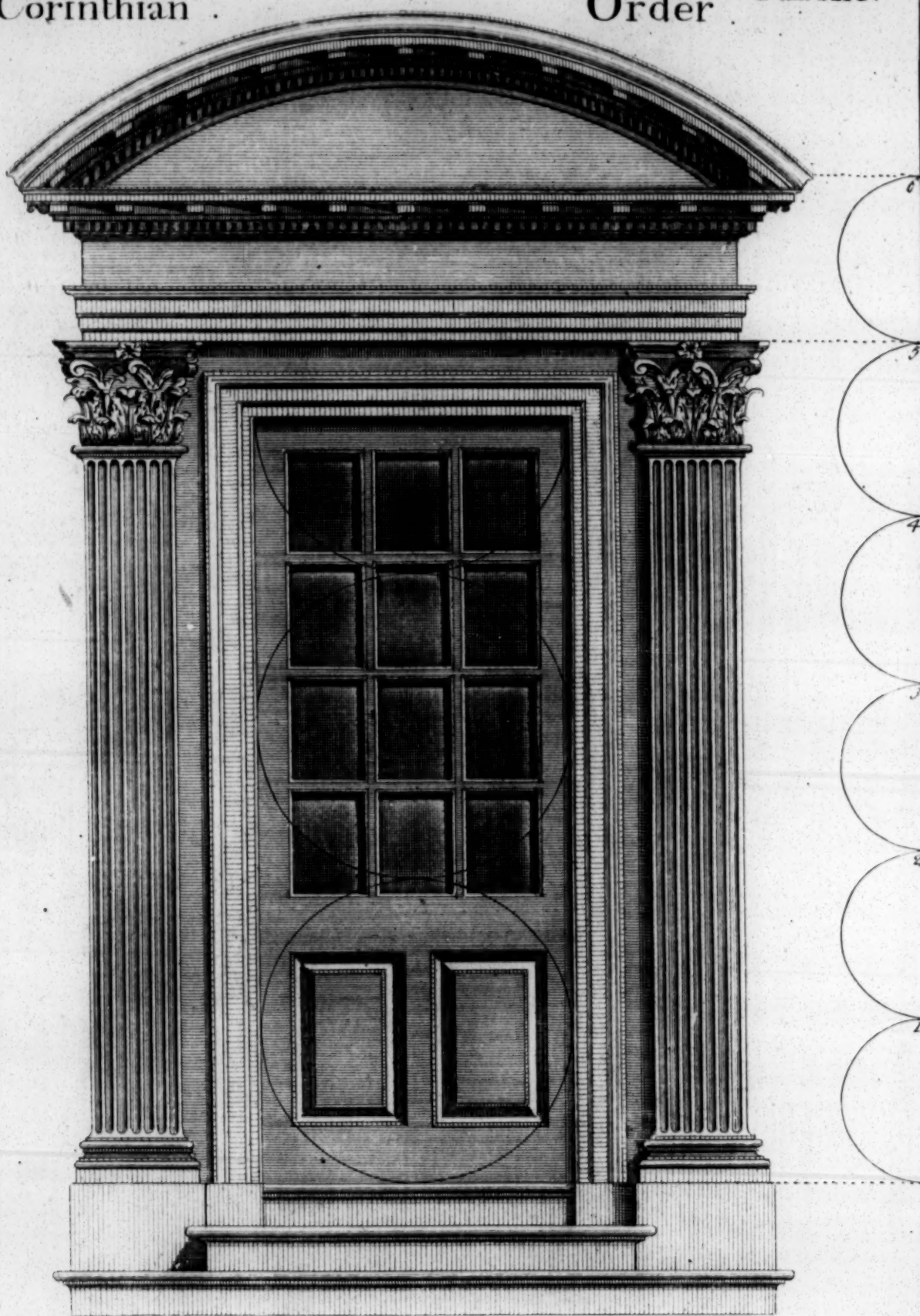
J. Mynde sc.

An Ionick Nische



Corinthian .

Order . *Plate XXV*



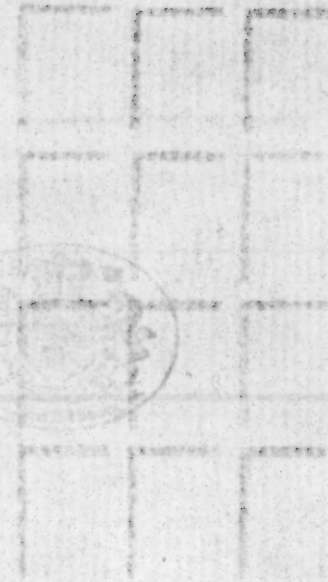
E. Hoppus. Delin.^t

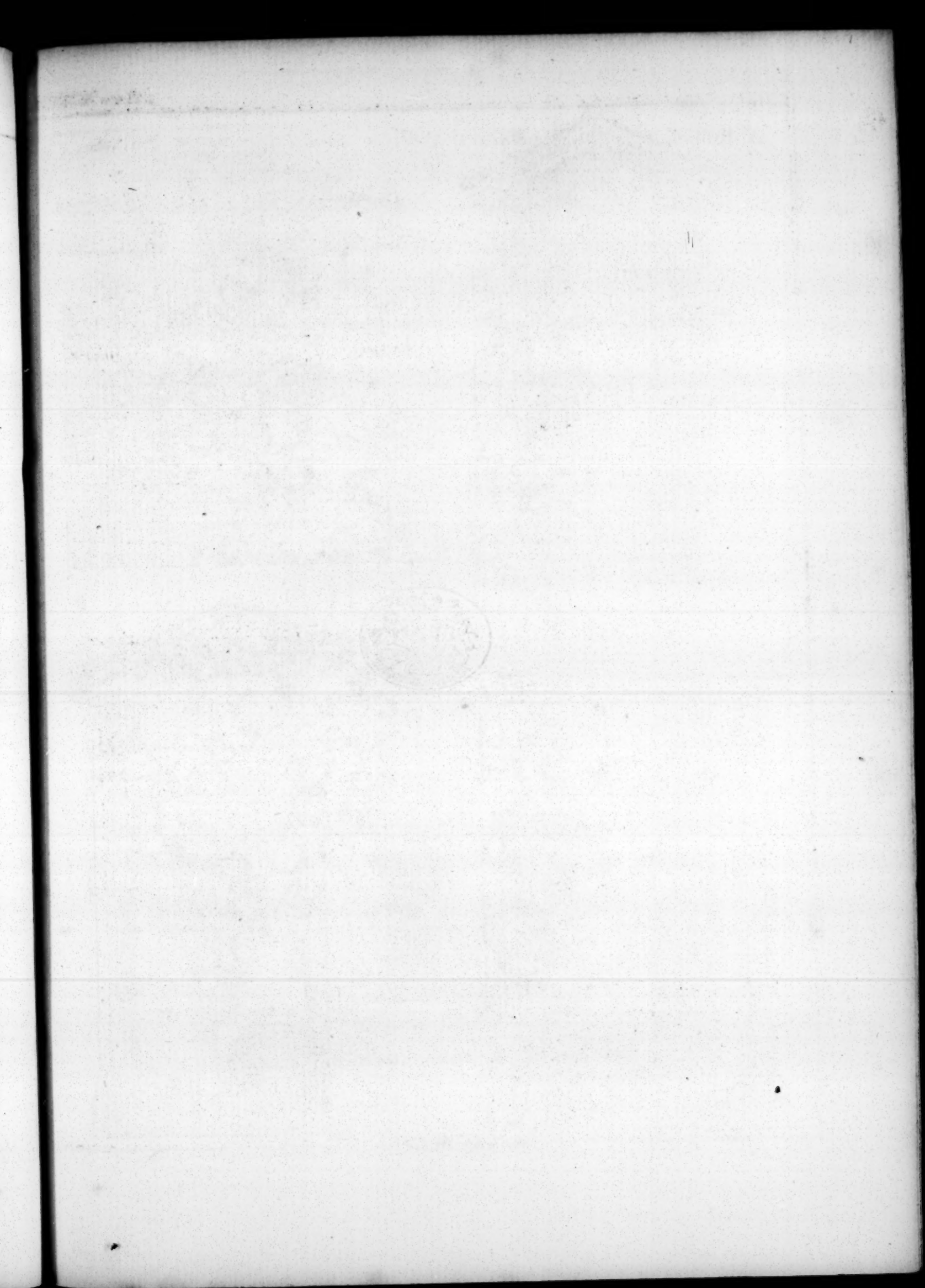
B. Cole. Sculp.

W. 200

Order

Correspondence

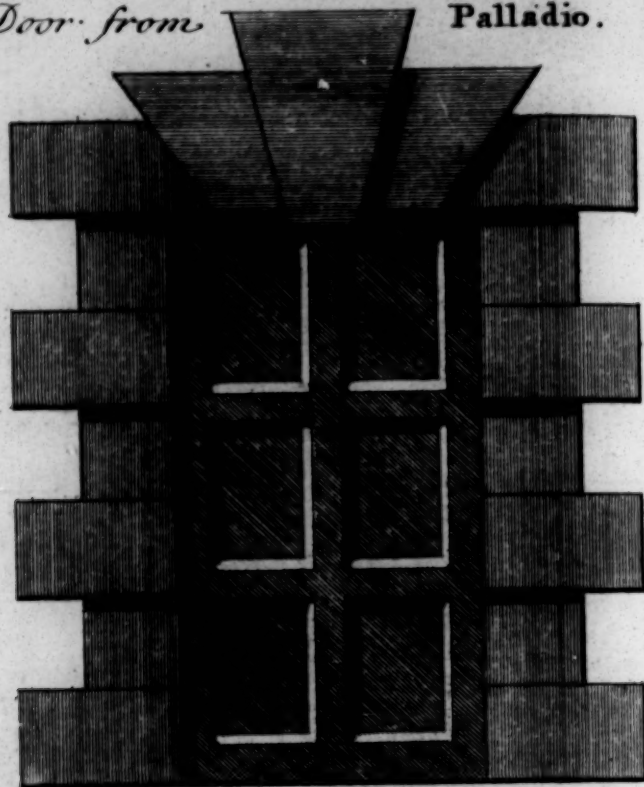
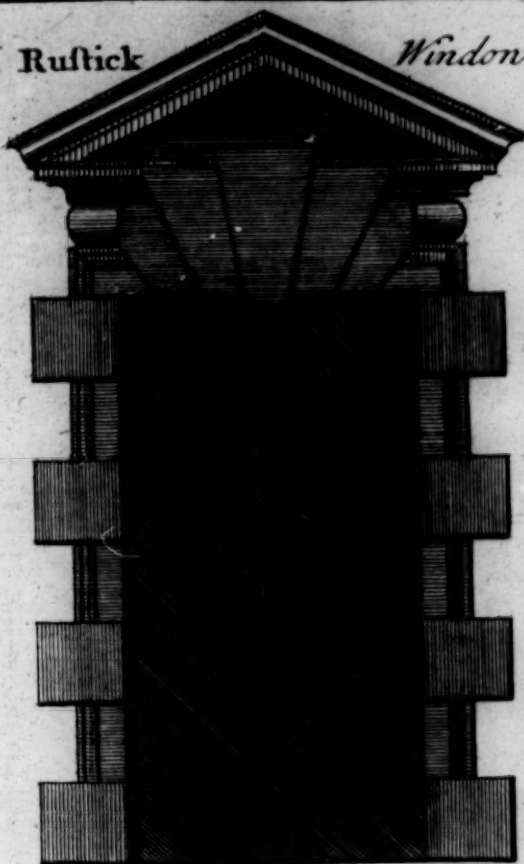




A Rustick

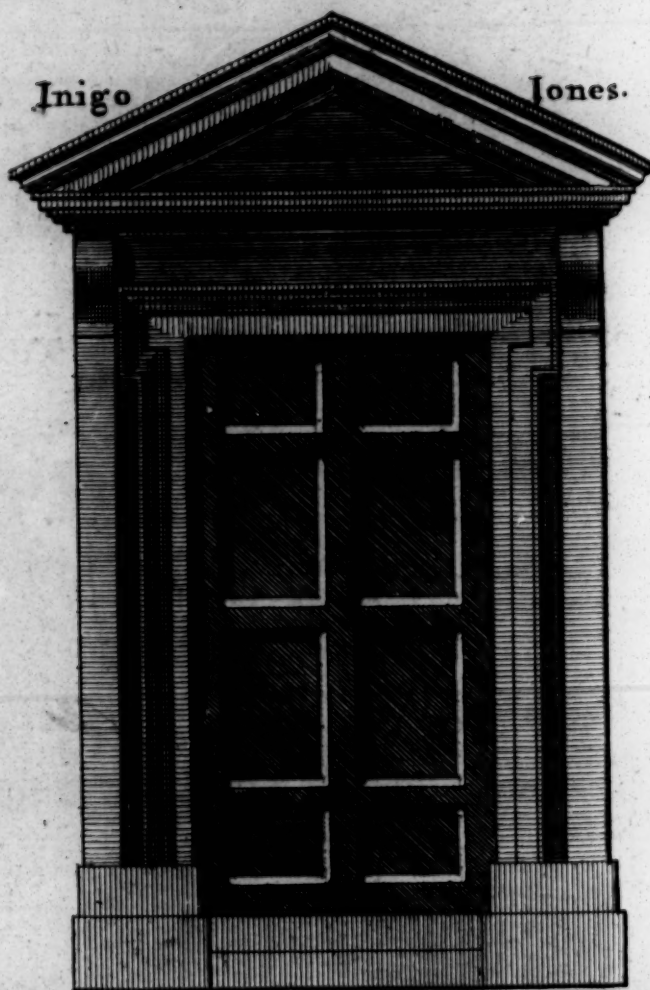
Window & Door from

Palladio.



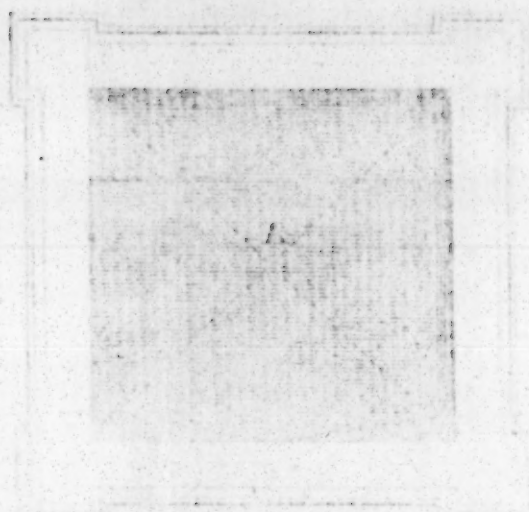
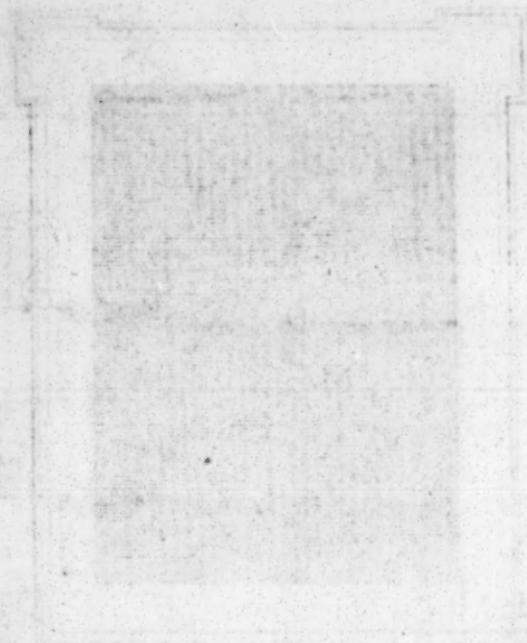
A Window & Door from Inigo

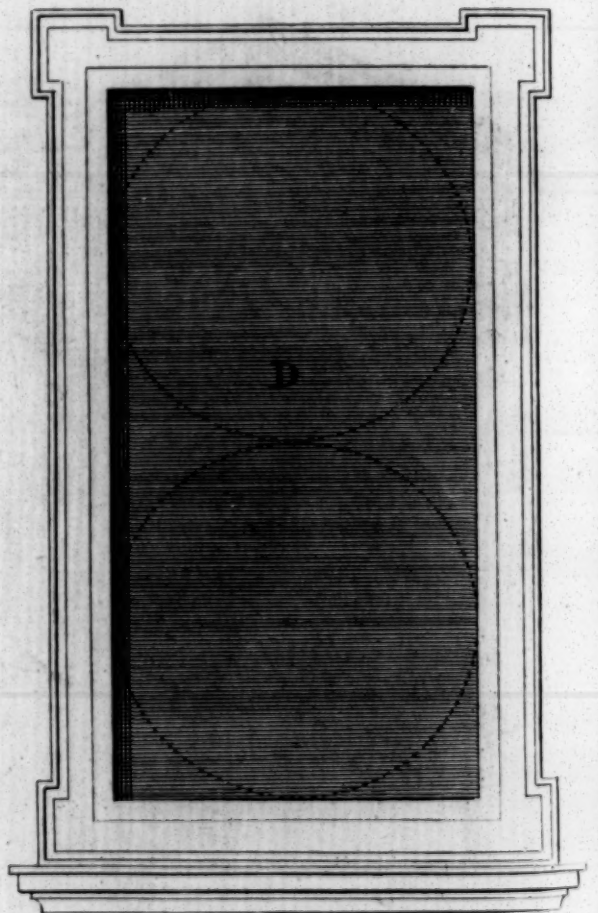
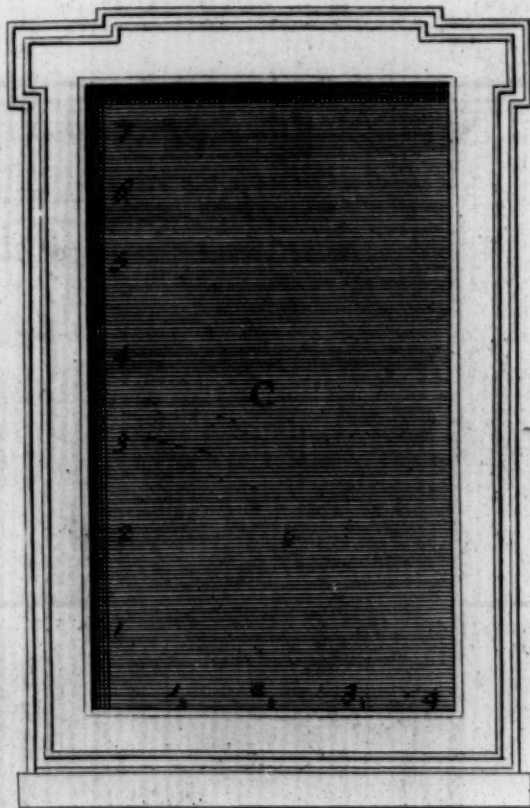
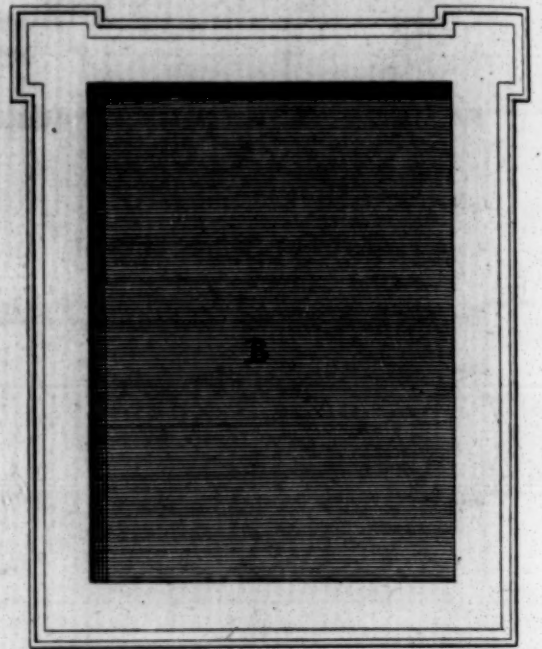
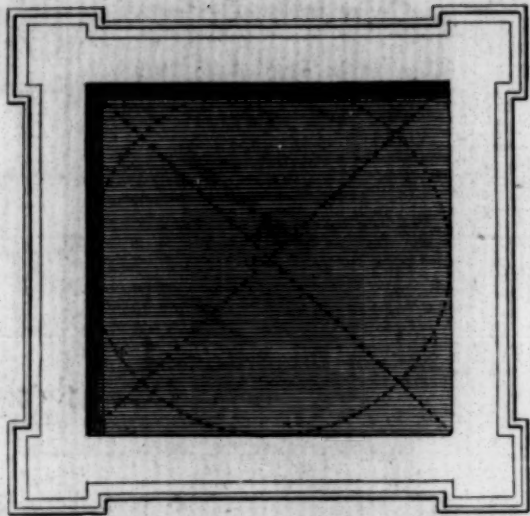
Jones.



B Cole Sculp

176. 176. 176.





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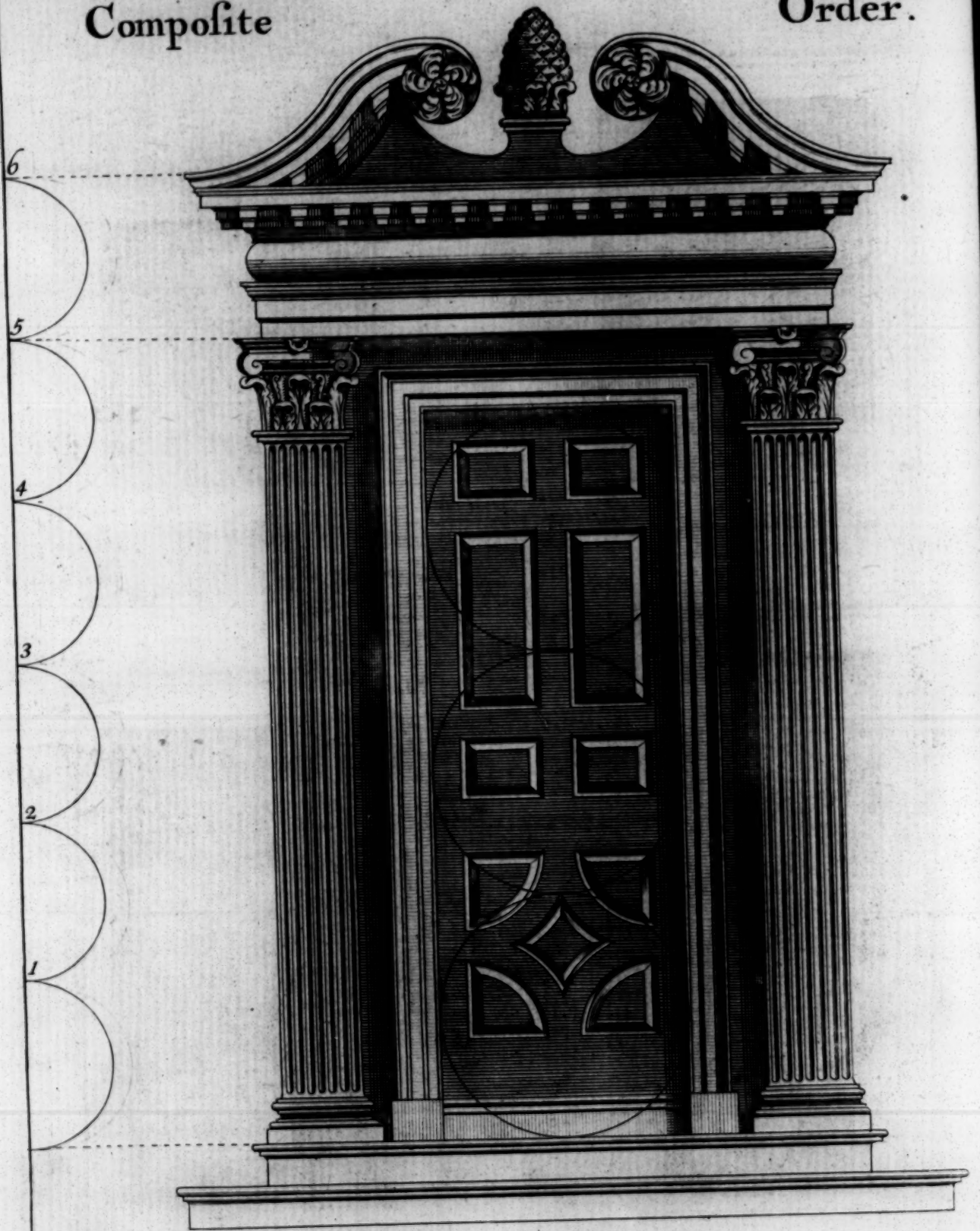
Order

Comptroller



Composite

Order.



E. Hoppus Delin.

J. Mynde

and $\frac{1}{2}$, and the Entablature a fifth of the Length of the Pilaster, and the Height of the Sub-Plinth, 1 Diameter of the Pilaster.

P L A T E XXVI.

Is a Frontispiece and Door of the *Composite* Order, with a Scrol Pediment open in the Middle; the Height of the Door is 3 Diameters, and hath a manner of Pannelling different from all the foregoing; also the Entablature is $\frac{1}{5}$ of the Length of the Pilaster, as may be seen by the Circles.

C H A P. XX.

Proportions for Windows.

H Aving shewn the various Proportions for *Doors*, according to their Dress and Distinction, it will be necessary to shew the different Sizes of Windows, adapted so as to be agreeable to any Height of Story.

P L A T E C.

On this Plate the upper Window on the left Hand marked A, is a true Square, the Height and Breadth being equal.

That of B hath for Height the diagonal Line of A, from Corner to Corner, they being all of one Breadth.

That of C hath for Height, the Breadth and three Quarters, as shewn by the Divisions on the Side and Bottom.

That of D is twice its Breadth in Height, than which Height none should exceed.

All the Architraves are one sixth of the Breadth, and are variously formed, as shewn on the Plate.

Some other Doors and Windows from the Antients.

P L A T E XXVII.

Is a Door and Window from *Palladio*, and also a Door and Window from *Inigo Jones*.

P L A T E

P L A T E XXVIII.

Is a Window from *Palladio*, and one from the antient *Romans*, and also a *Venetian* Window.

P L A T E D.

Here are shewn two grand *Piers* for Gates, adorned with Rustics in front, and Niches behind, with a *Sphinx*-like Figure on each; the Opening, or Space between, is 3 times the Breadth of the said *Piers*: Something like these are to be seen before His Grace the Duke of *Bedford's* House in *Bloomsbury* Square.

P L A T E E.

On this Plate are three different Designs of Obelisks, all drawn to the same Scale, and which are in a Proportion of 6, 7 and 8, Diameters in Height; and being also varied in the Ornaments and Heights of Pedestal, affords a great Diversity; they are all diminished one fourth Part of the Diameter at bottom, and the first and last form a Square for the finishing at top, also the middle one may be so finished, this curvilinear Form being introduced for Variety. These Obelisks are lately much in use, as in *St. James's Square*, *Lincoln's-Inn-Fields*, for supporting Lamps; and there is also a stately one lately erected in the Center of *Red-Lion-Square*, *Holborn*, not unlike the highest of these.

Of the Ornaments of Doors and Windows.

P L A T E XXIX and XXX.

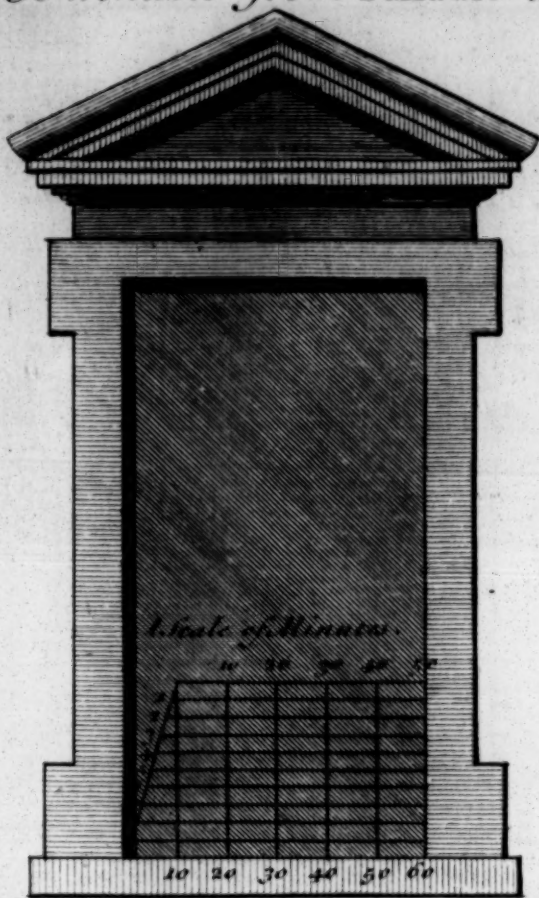
1. They may be made divers Ways, as they are in these Plates described: And for the better understanding of which, I have set down the Height and Projection of every Member, by a Module and Minutes.

The Module is the Aperture, or Breadth of the Door, divided into 60 equal Parts or Minutes.

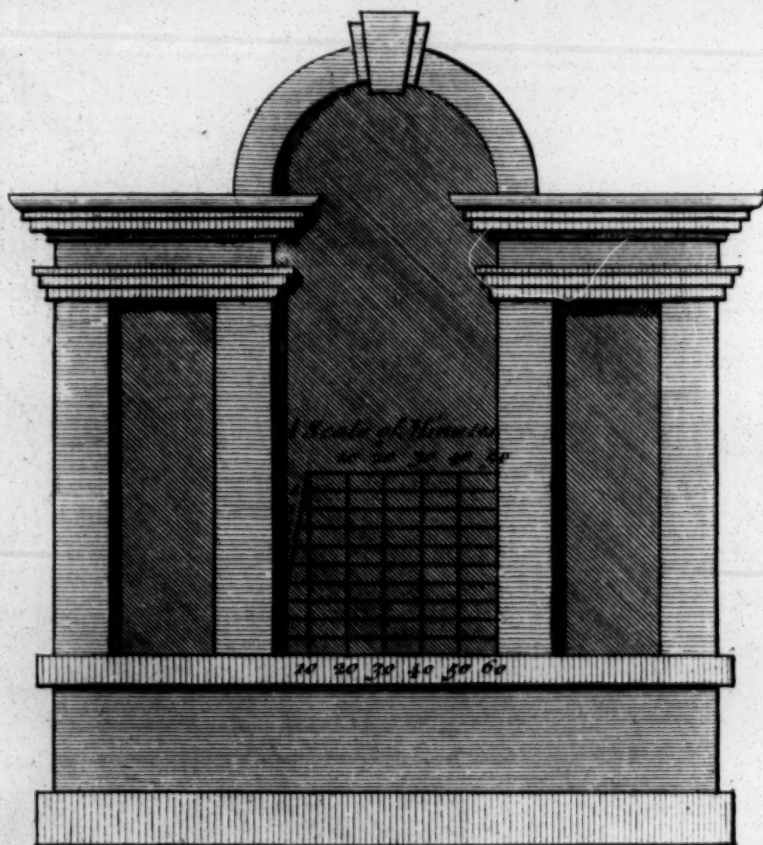
The Ornaments given to Doors and Windows, are the Architrave, Frize, and Cornice: The Height and Projection of every Member therein contained, is shewn by the Figures placed at the ground or naked Line, and at the Extremity of every Member.

Those

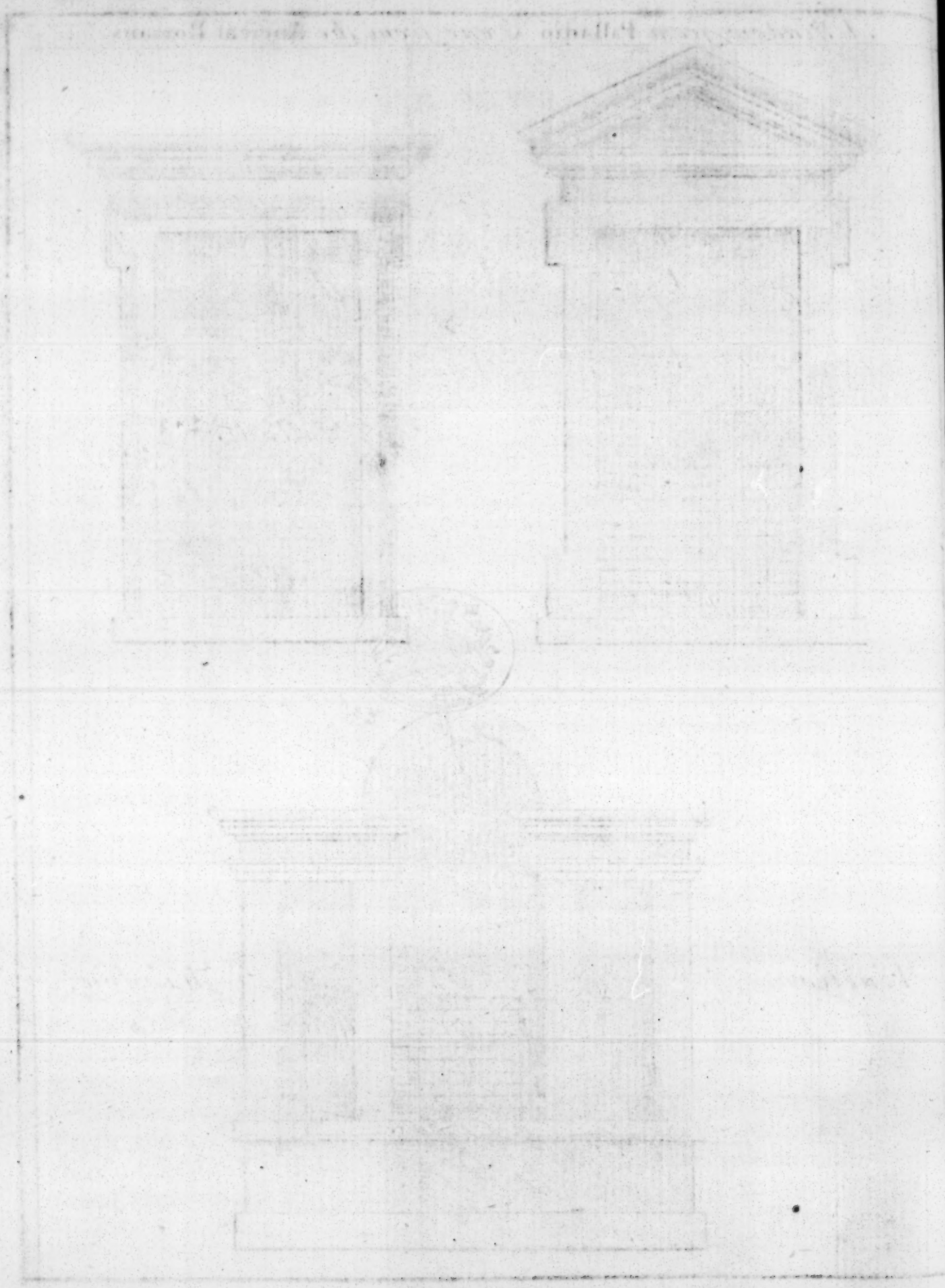
A Window from Palladio & one from the Ancient Romans.



Venetian



Window.



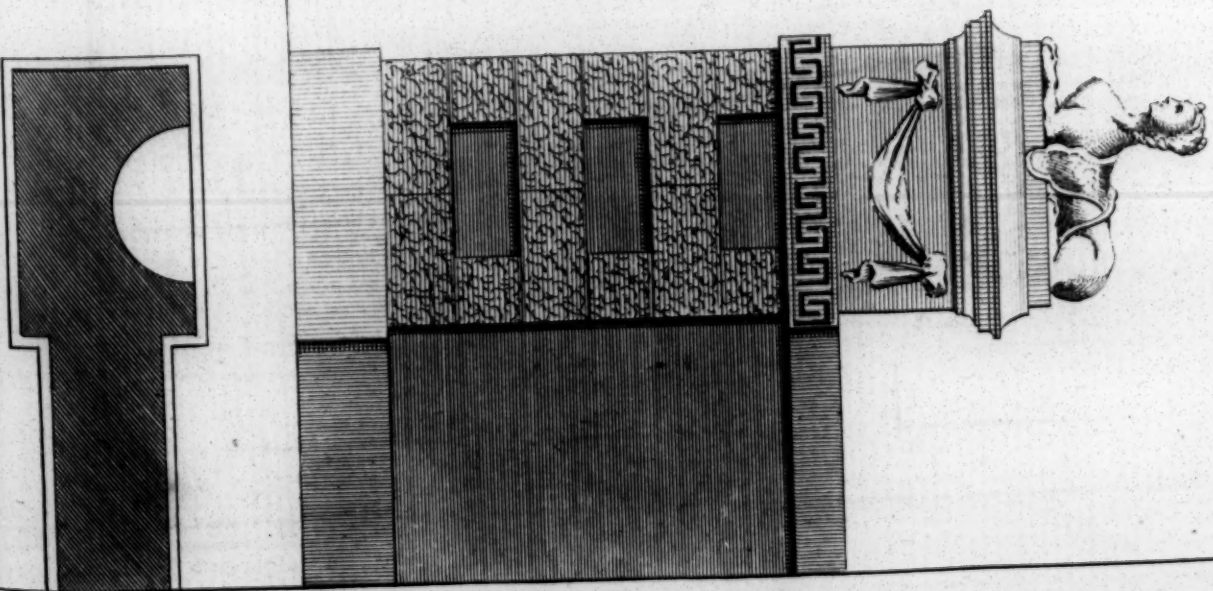
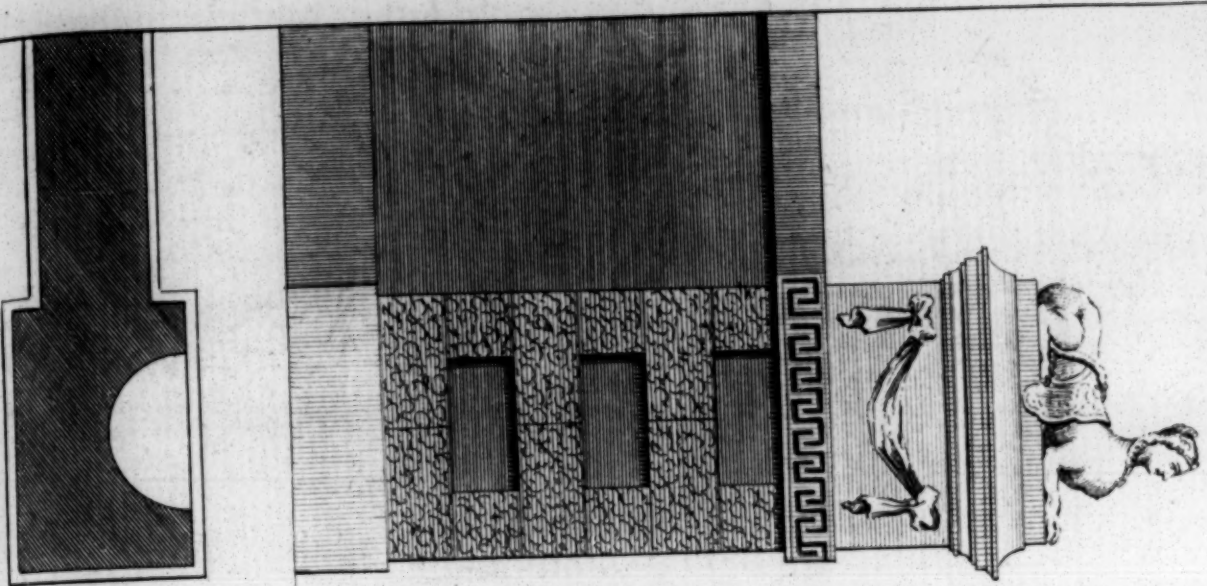
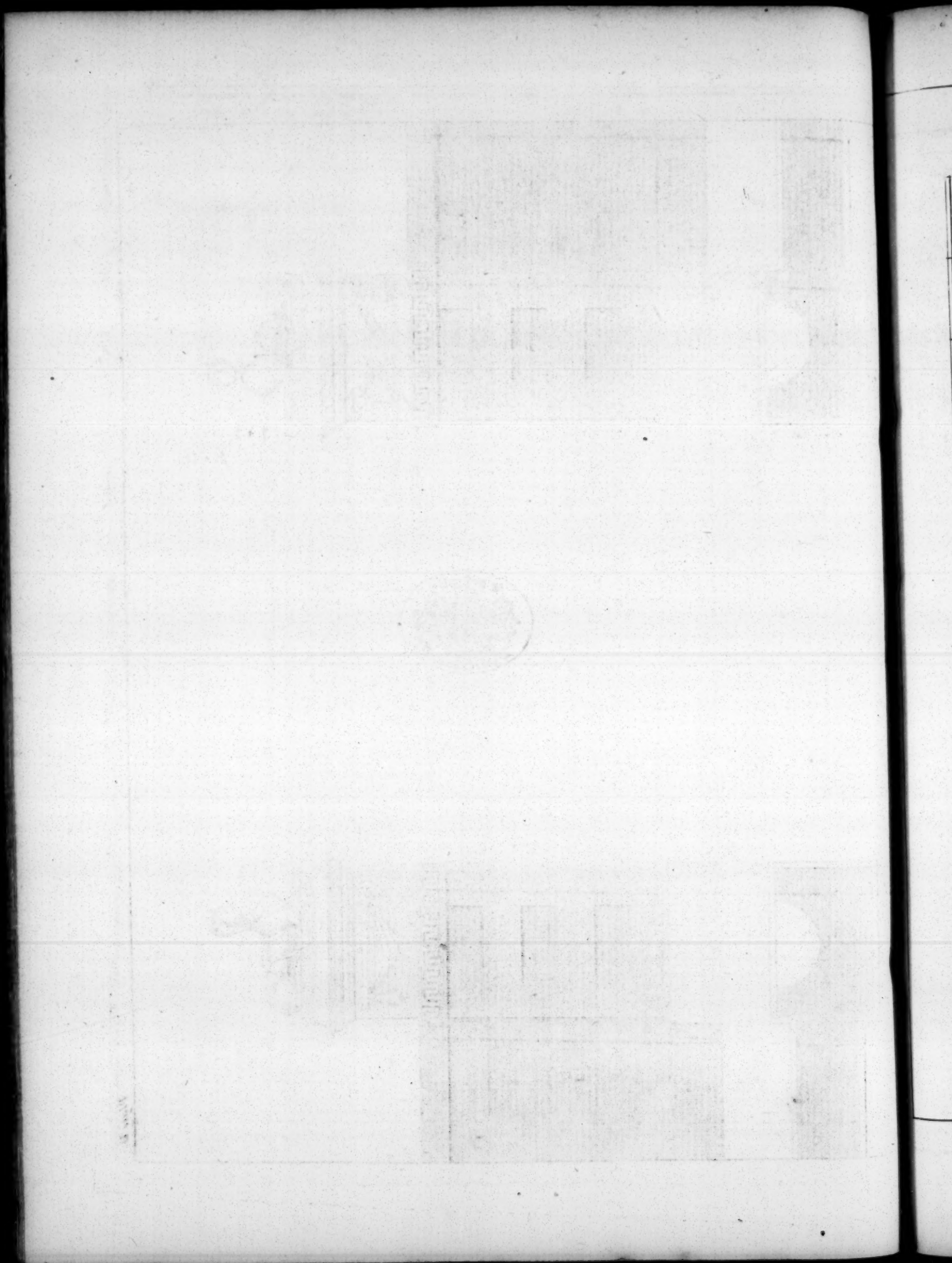
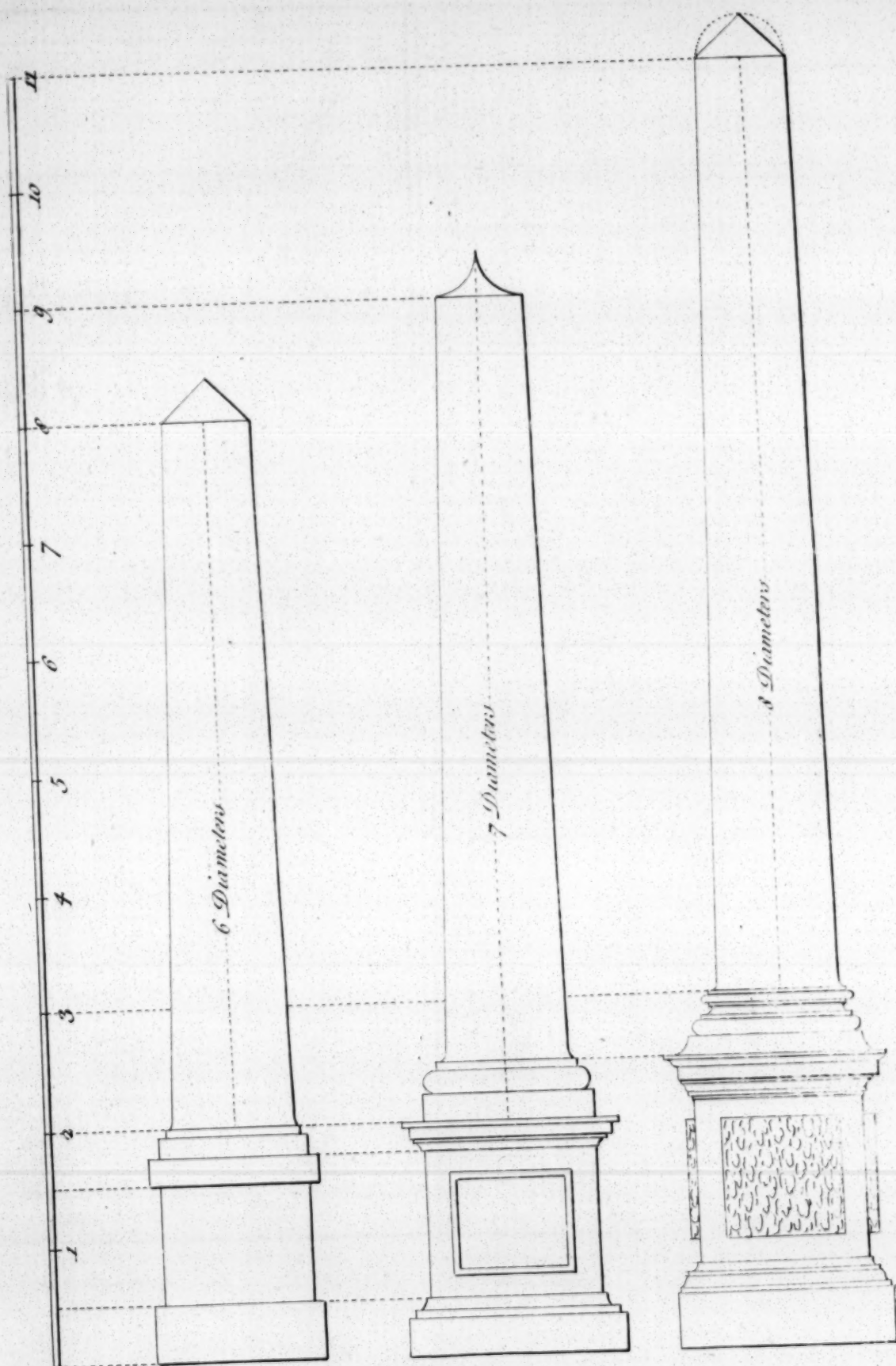
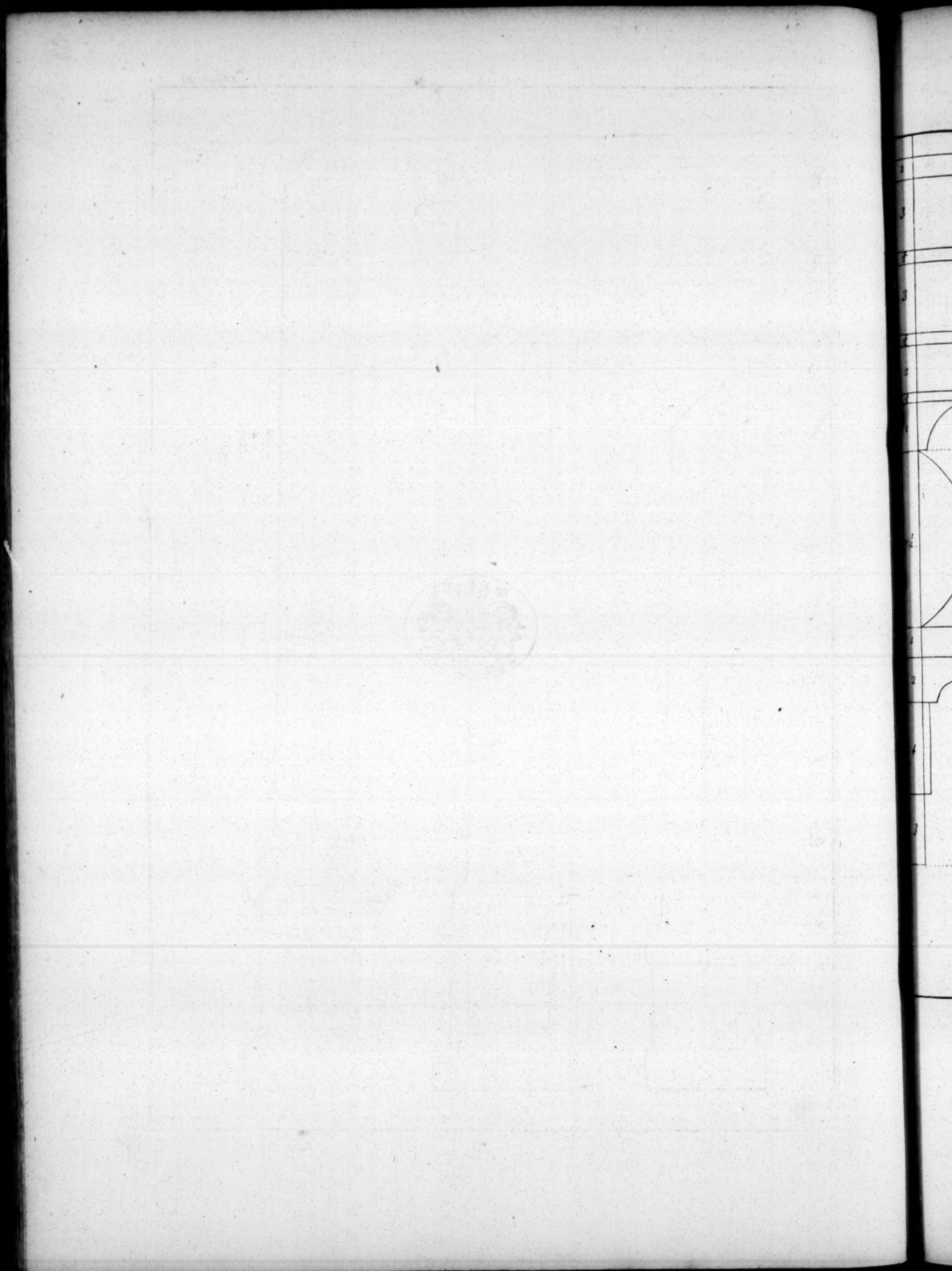
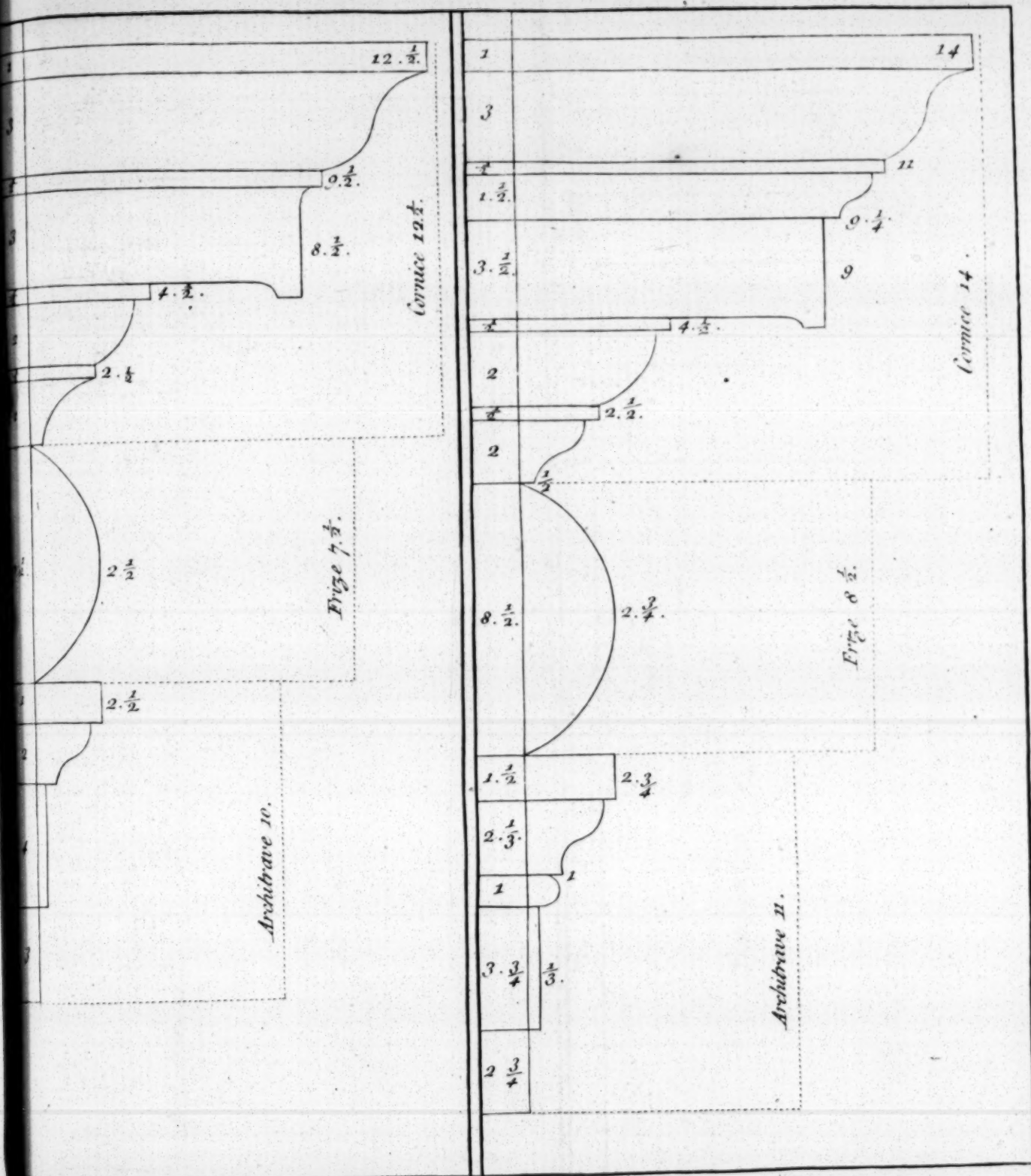


Plate D.

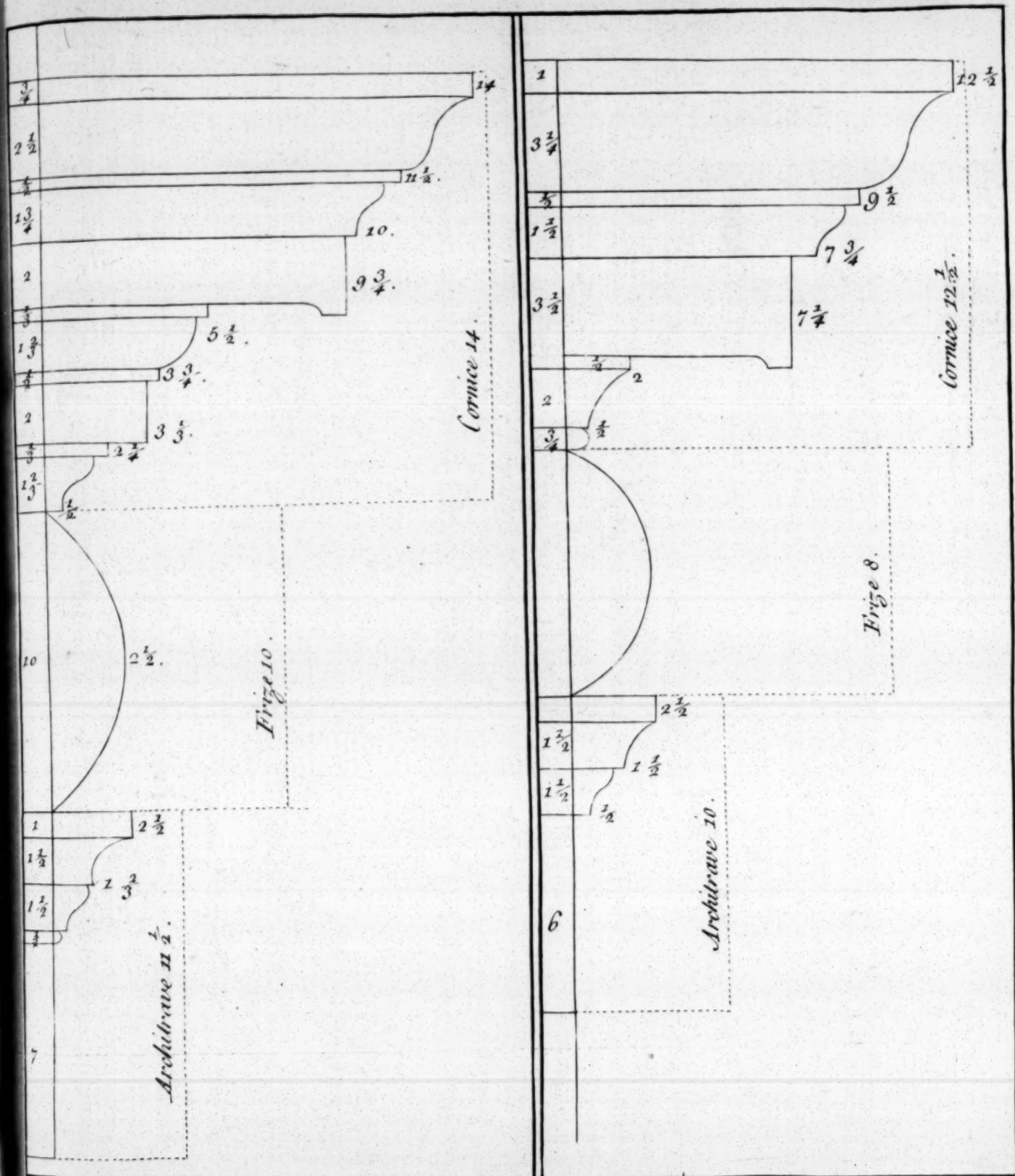


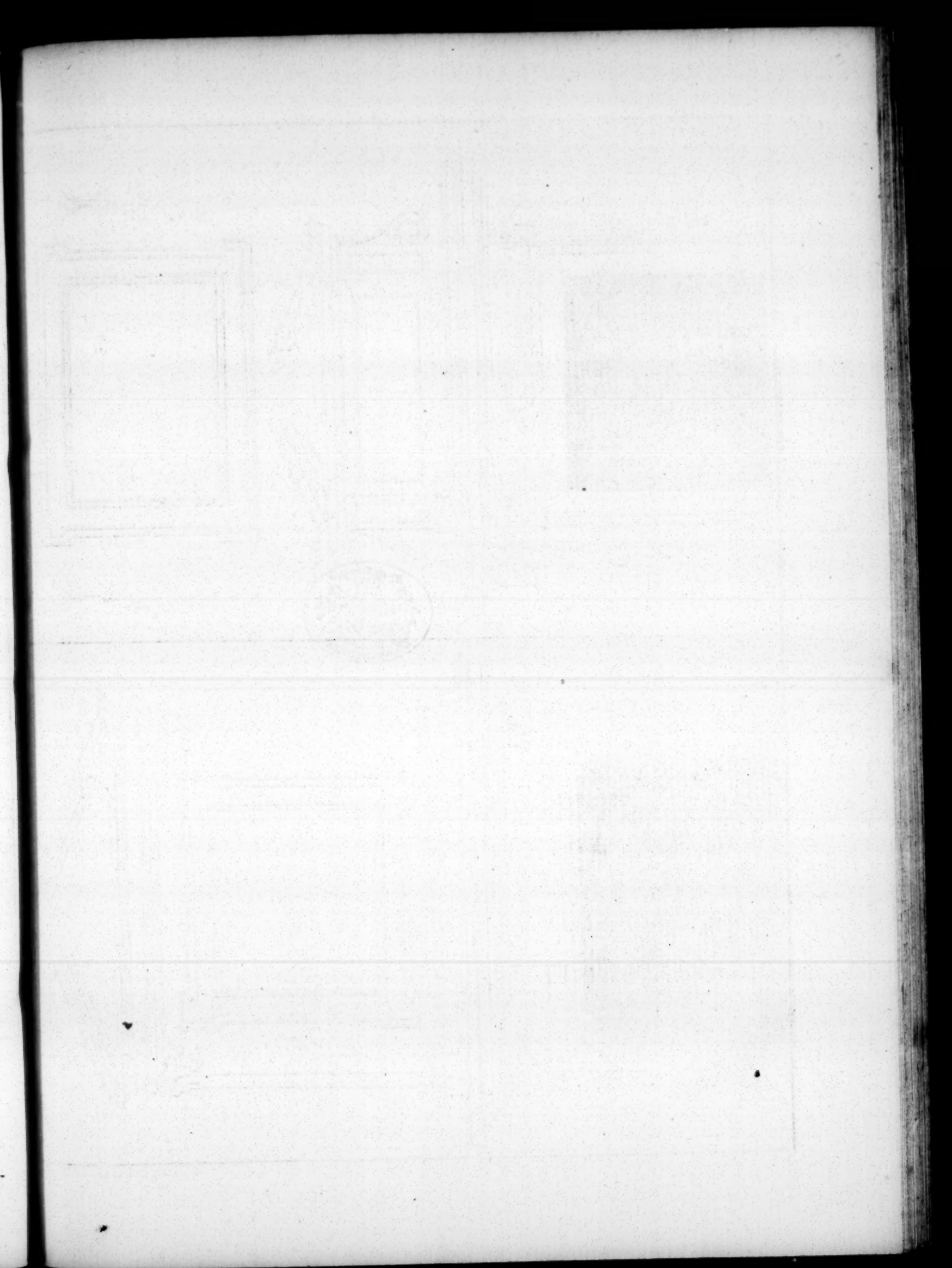


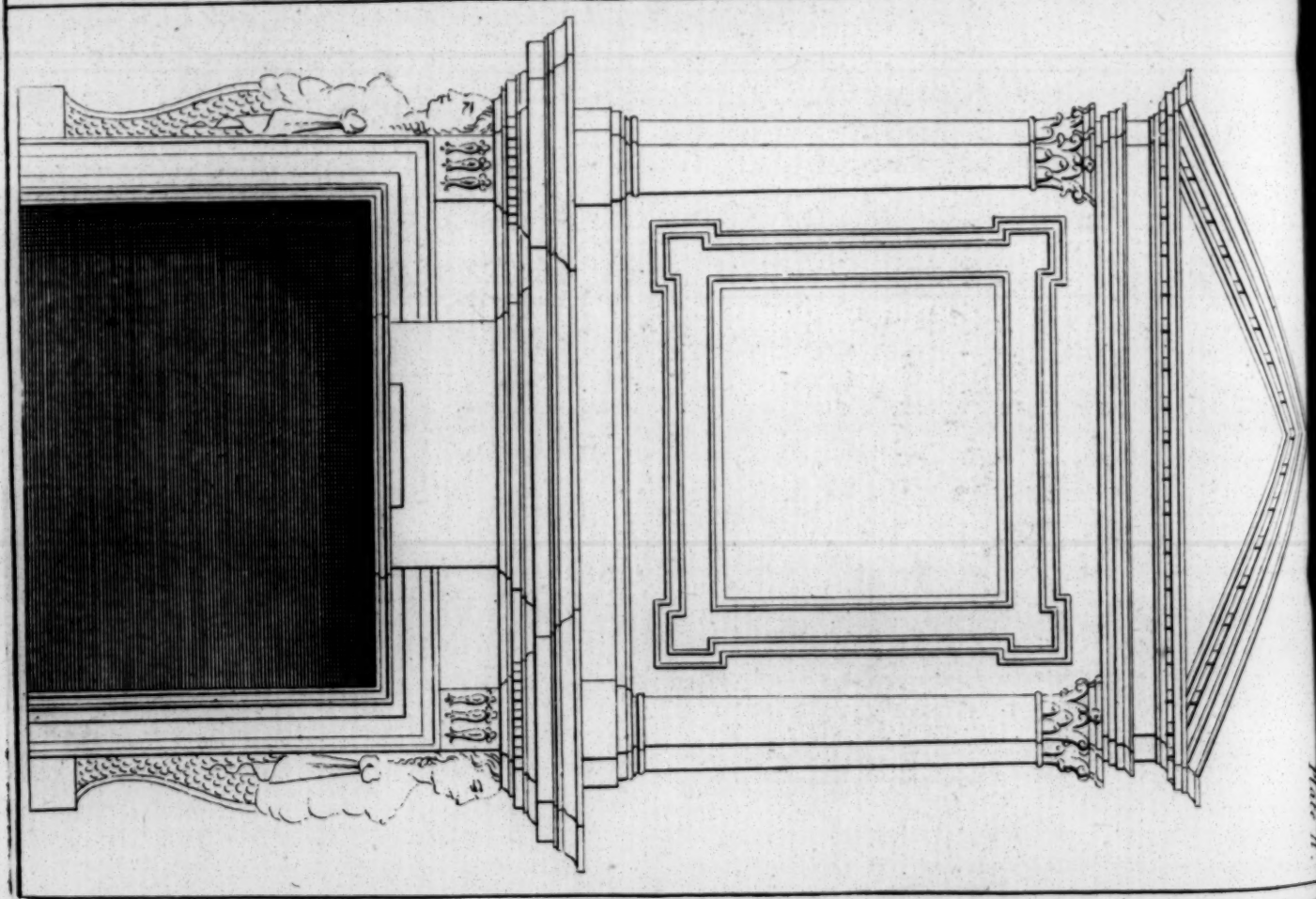
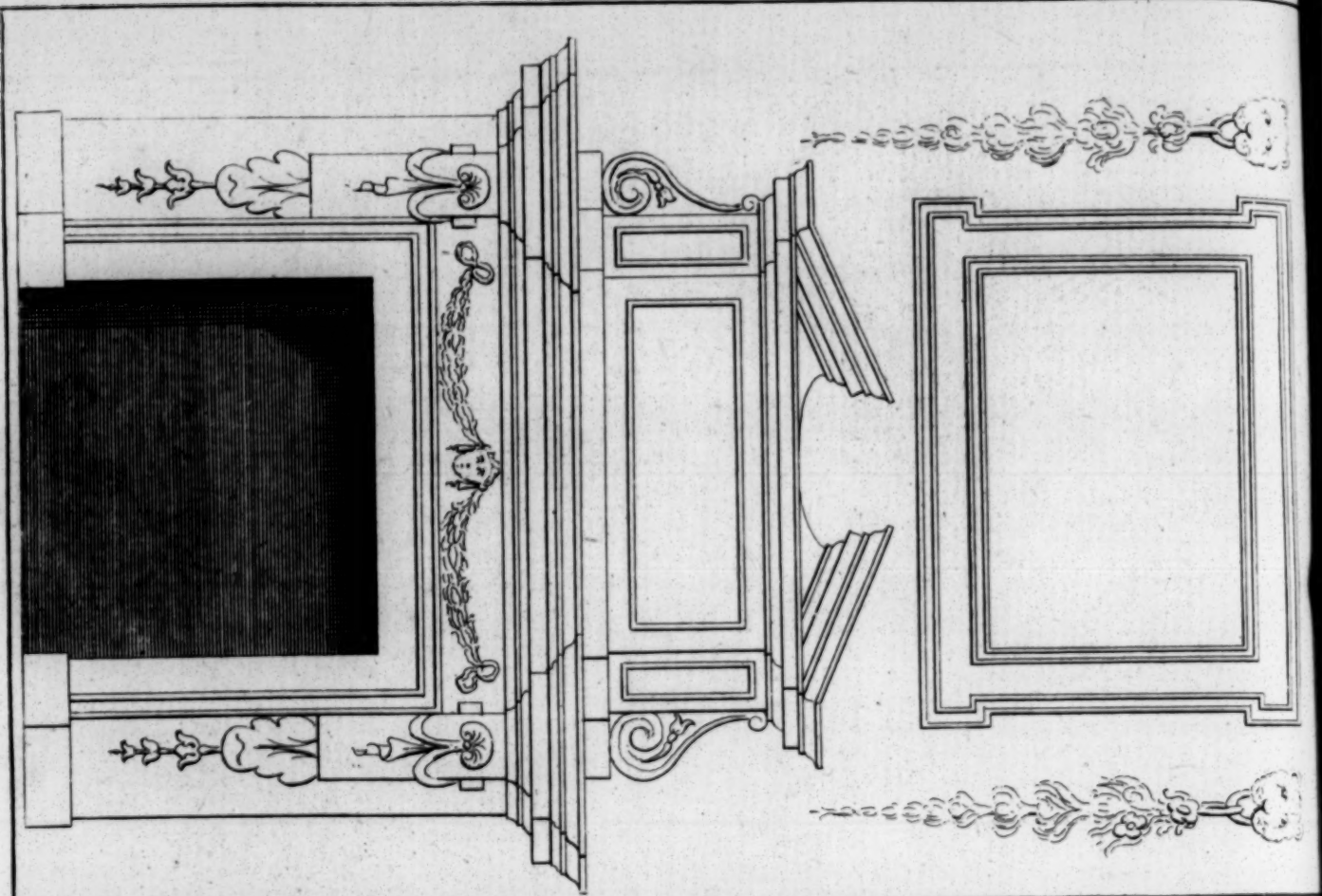




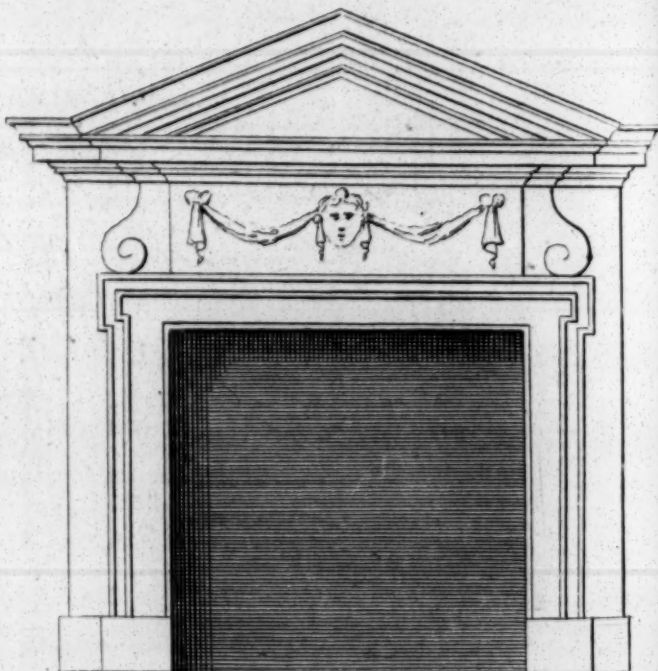
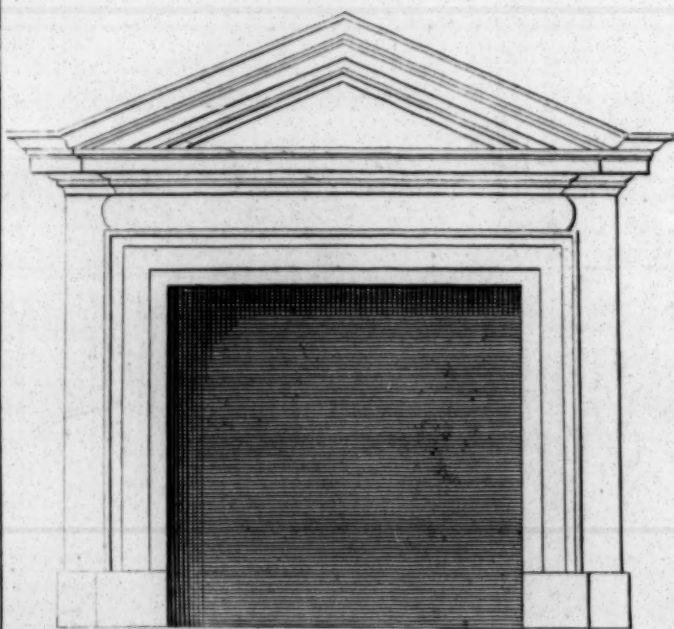
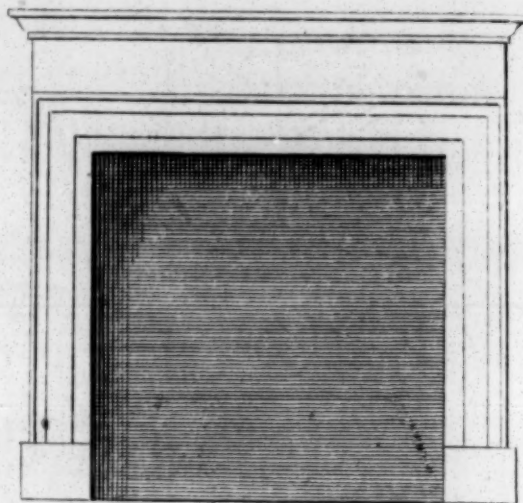
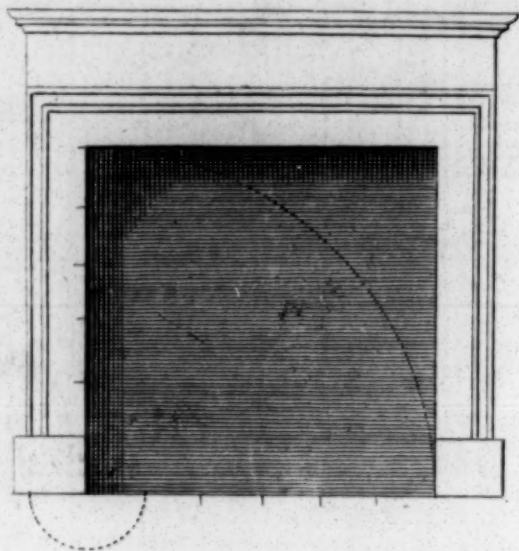
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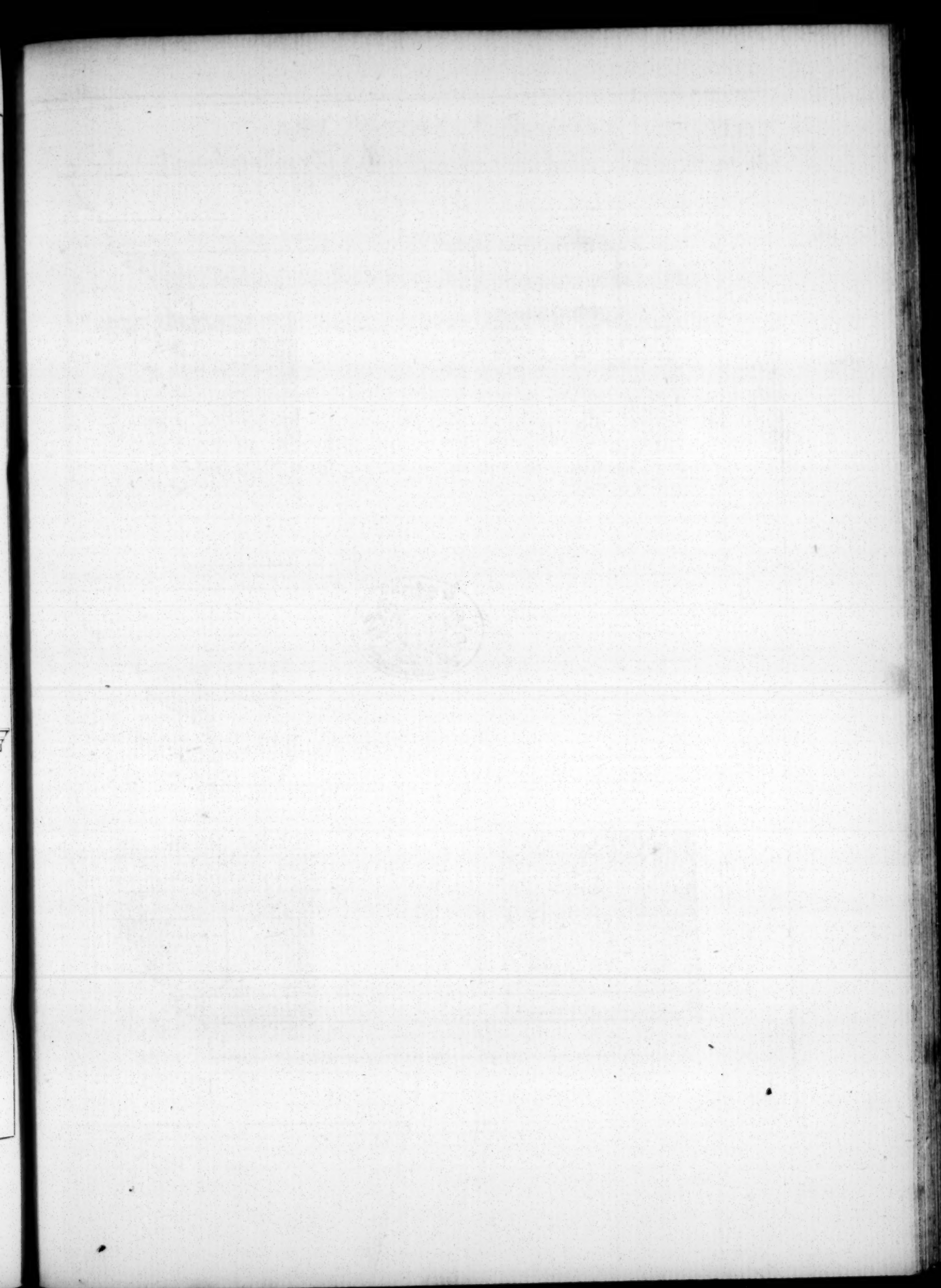


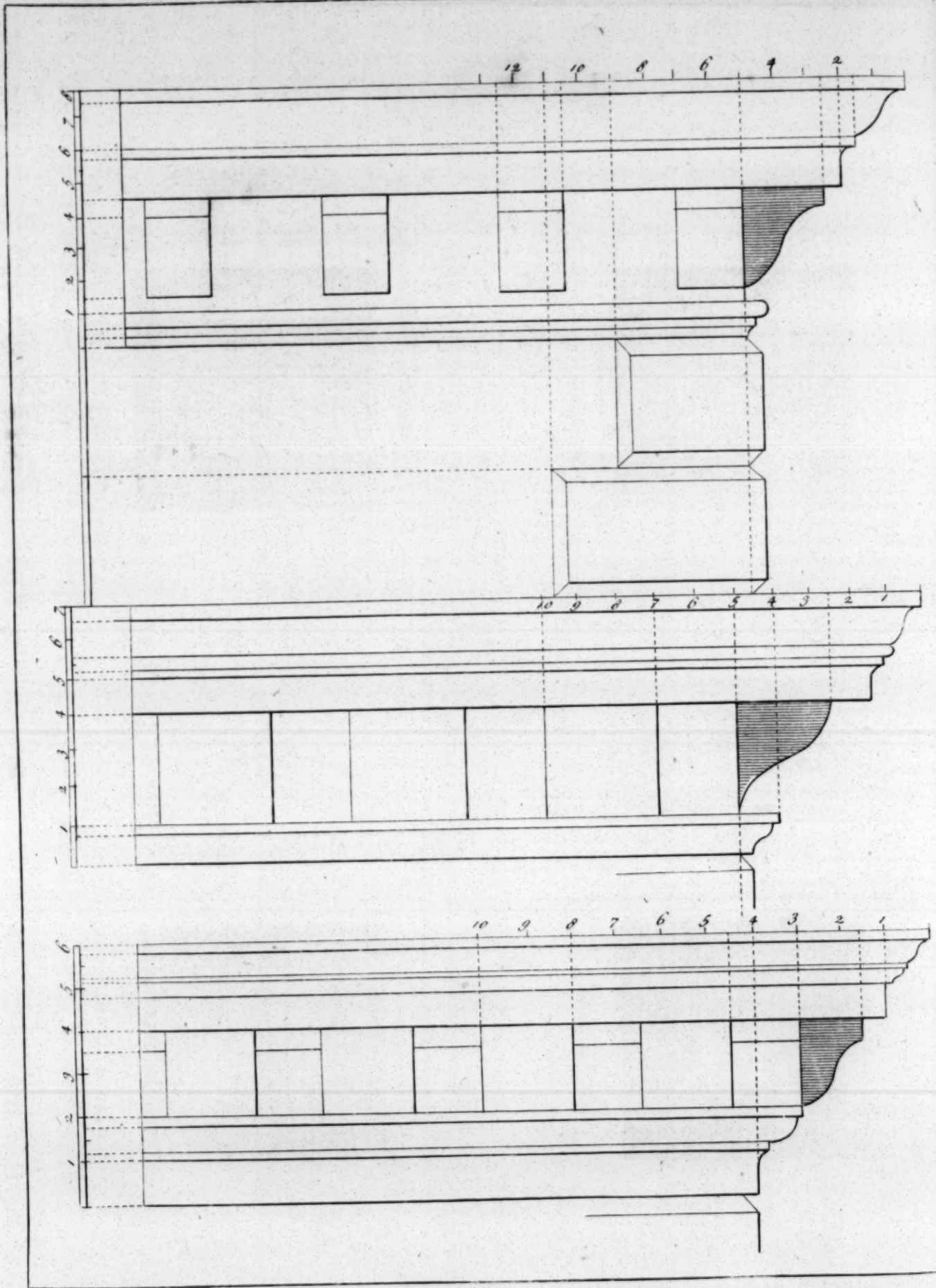












Those between the Lines sheweth the Height, and those at the Extremity the Projection of the Members.

Note, The said Architrave is continued on the Sides, as well as at the Top of the Door or Windows.

Concerning Block Cornices, and rusticated Quoins. Plate F.

On this Plate is shewn 3 different Kinds of Cornices, called *Block Cornices*, by Reason of the Voids and Solids, like Modillions made in the middle of them, they are easily comprehended by observing the Divisions on the left Hand, from which the Projection of each is also taken, and for the Quoins, they are in Height the Half of the Cornice, and are in Proportion to one another for Length, as two to three, and their cyphered Edges are cut off $\frac{1}{8}$ of their Height.

C H A P. XXI.

Of Chimney-Pieces.

ACCORDING to the bigness of the Rooms, must the Chimney-Pieces be regulated in Proportion thereto, for it would be equally ridiculous to see a small Chimney-Piece in a large Room, as a large one in a Closet.

P L A T E G.

On this Plate is exhibited 4 Sorts unlike each other, (their Vacuities excepted) which are all equal in Height and Breadth, their Architraves are always one sixth Part of the Breadth of the Opening, and the Pilasters two thirds of the said Architrave.

P L A T E H.

Here you have two other Designs of Chimney-Pieces, full of Decoration and Ornament, their Openings differ from the last, in that their Breadth exceeds the Height, and they have Frames for Pictures, &c. over them.

P L A T E

P L A T E I.

That nothing might be wanting to make this Work perfectly useful, here is added another Chimney-Piece of an expensive Nature, though done but in Wood only; but if in different coloured *Marble*, will be exceeding Grand and Noble.

Of the Proportions of Rooms, as to Lengths, Breadth and Height, together with the Coving of their Ceilings. Plate K.

Here is shewn four different Designs of Rooms. That of No. 1. being a perfect *Cube* of 18 Feet every Way.

No. 2. Is 18 Feet by 24, or a Square and $\frac{1}{3}$, and hath the same Height as Breadth, *viz.* 18 Feet.

No. 3. Is 18 Feet by 30, or a Square and $\frac{2}{3}$, and is 24 Feet high, including the Cove, which is $\frac{1}{4}$ of the Whole.

No. 4. Is 18 Feet by 36, or two Squares on the Plan, and is the same Height as the last, including the Cove, which is also $\frac{1}{4}$ of the Whole.

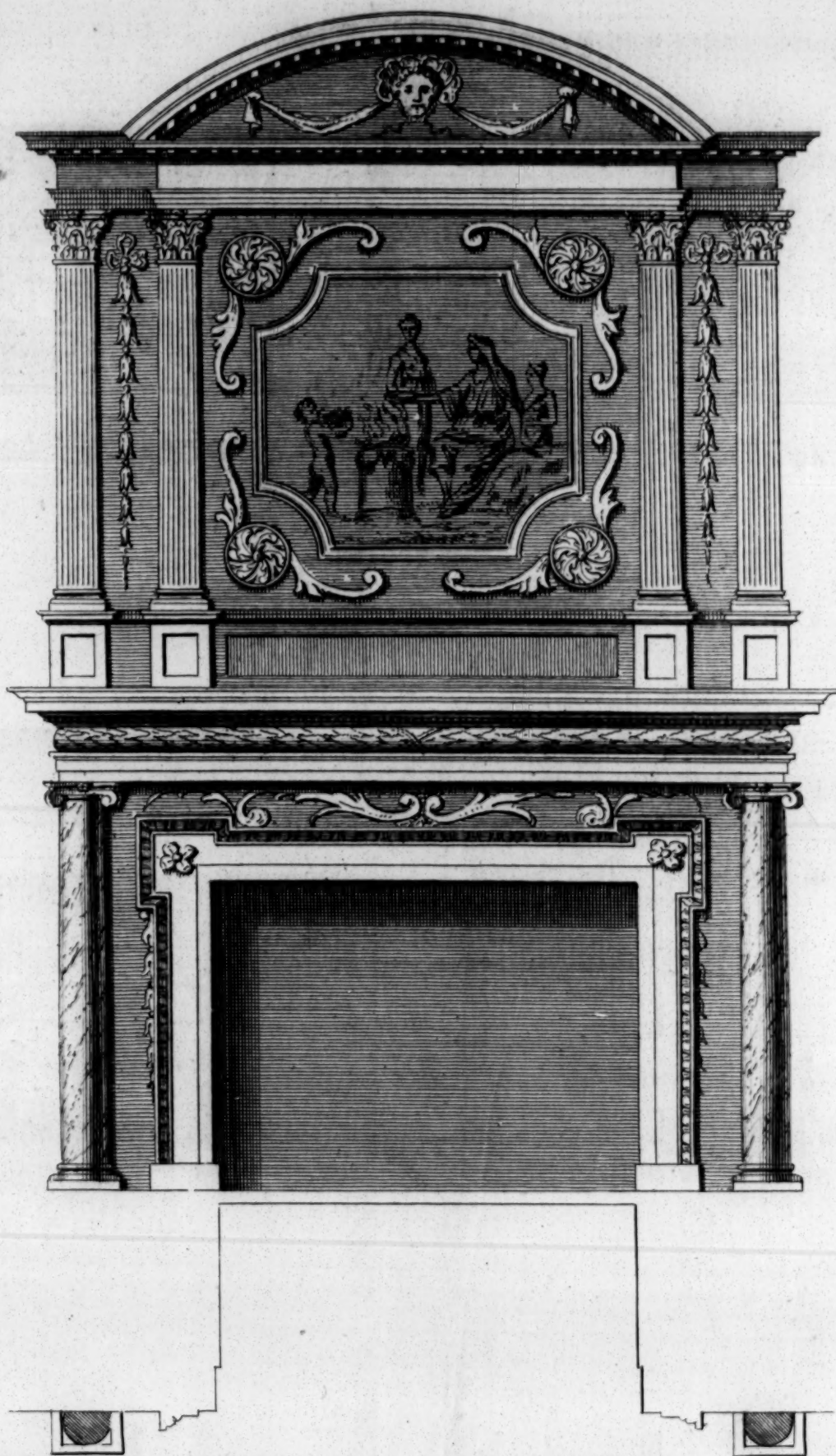
Of Ornamenting Ceilings. Plate L.

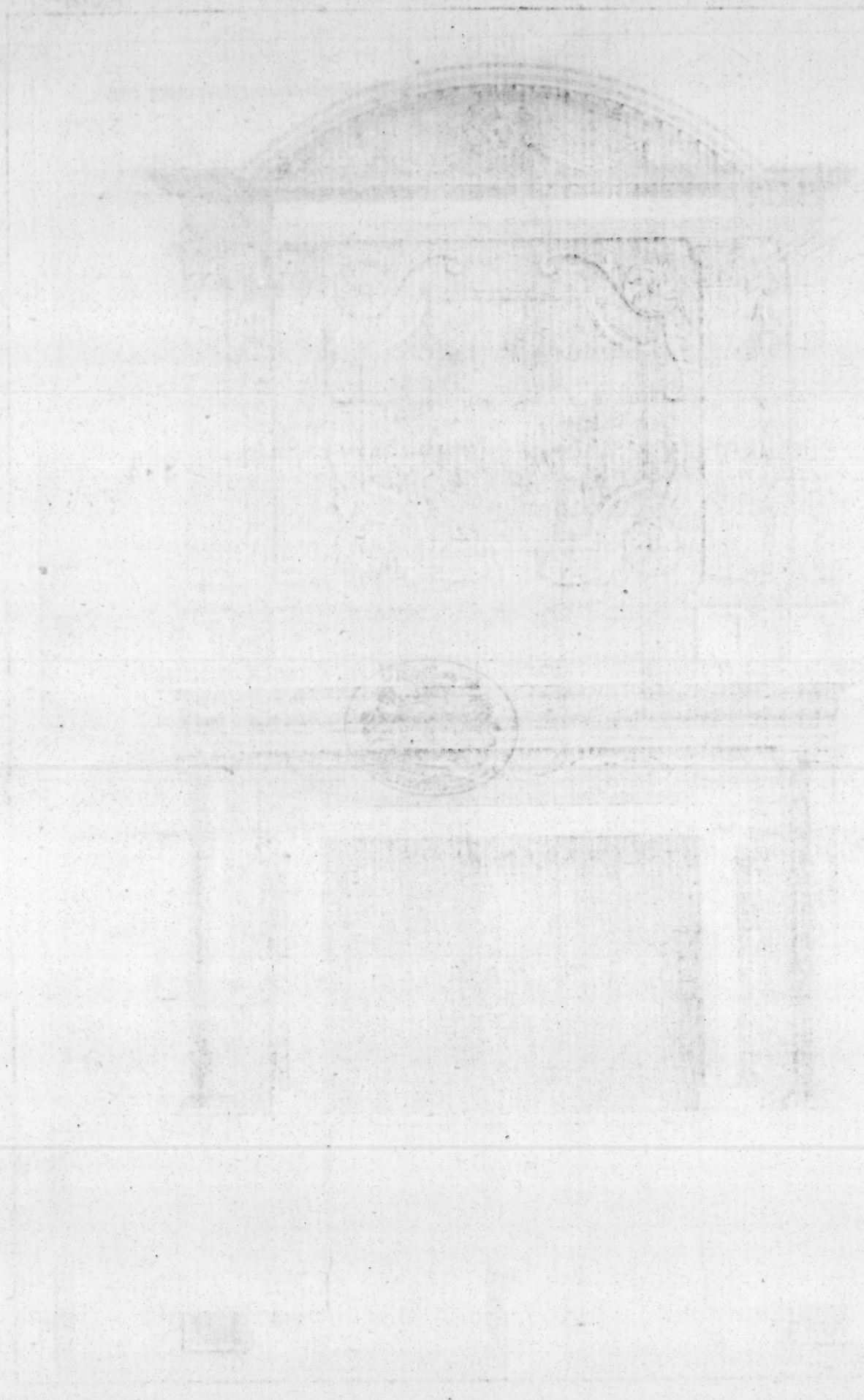
On this Plate is shewn 2 different Manners of a Flat Ceiling, and by being thus divided into Pannels and adorned with Fret-Work, or Painting, must needs have a more pleasing Effect, than if the whole were in one large Pannel; on the Side you have the Proportions for the Pannels and Mouldings, &c.

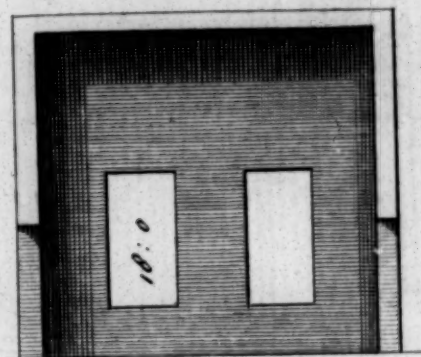
Of certain Ornaments called Frets. Plate M.

These are much used on Picture-Frames. Soffites of Arches, on Architraves, and on Facias, &c. And sometimes on the Plinths of Basis, especially if the other Members be carved; and though these Ornaments may be thought insignificant, they have a delightful Appearance when truly wrought.

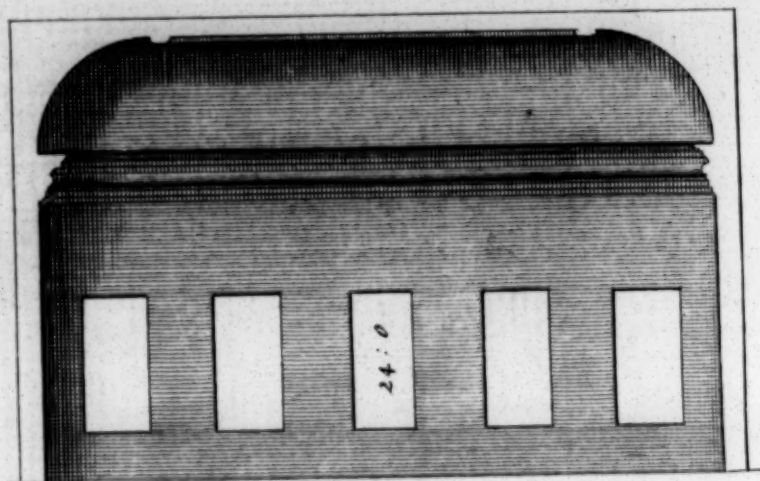
On this Plate, on the Outside, you have 4 different Sorts. Two being formed by equal Divisions of 15 Parts, and the other two of 11 Parts each; and although the Angles or Corners are usually filled up with a Shell or Flower, instead of continuing the Fret round. Here is shewn how they may be turned round the Corner,



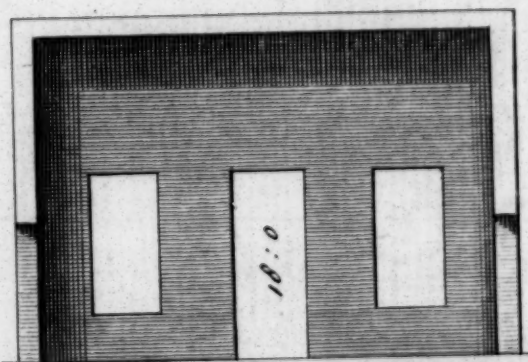
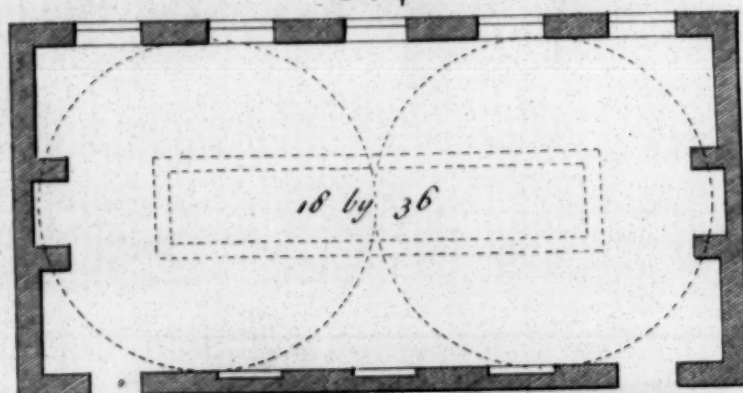
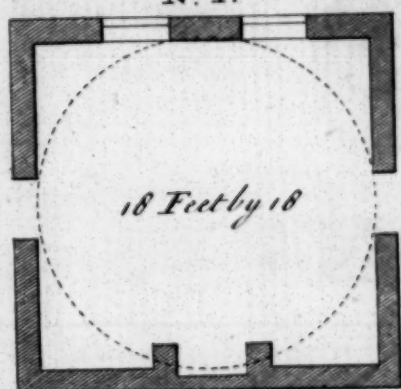




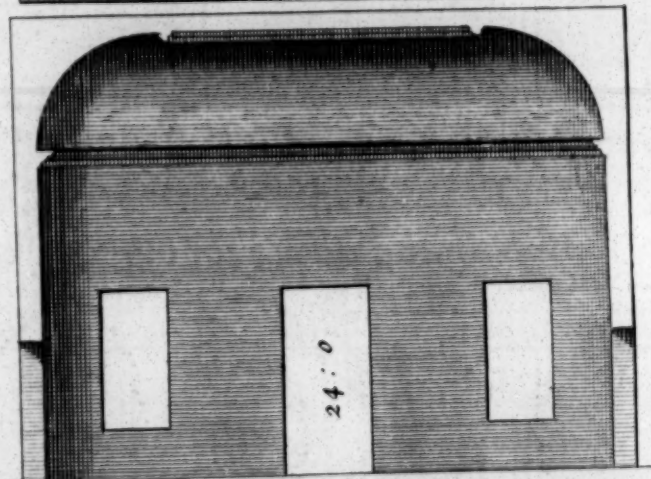
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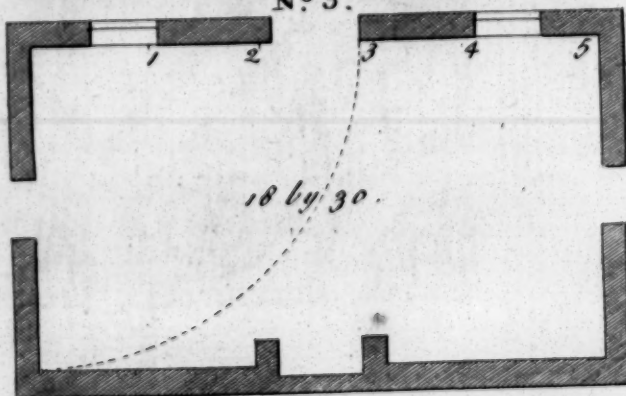
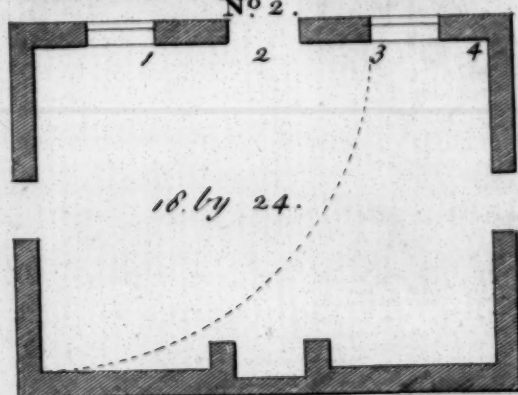
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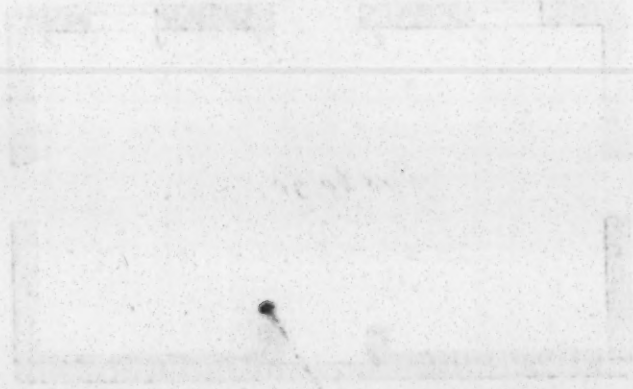
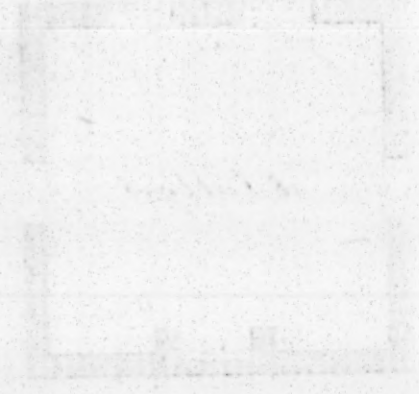
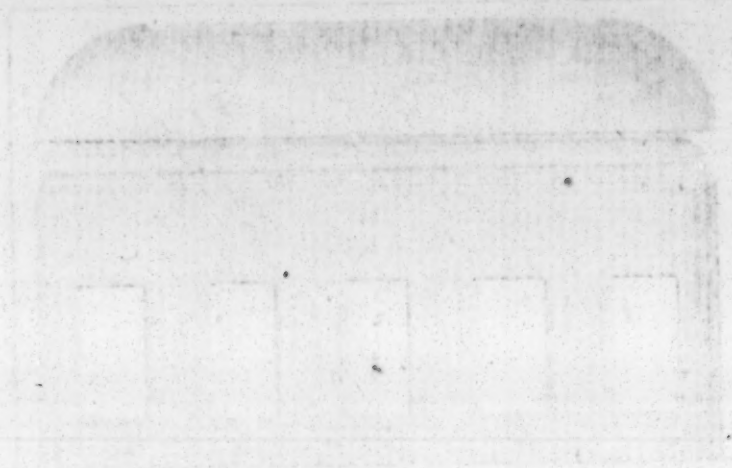


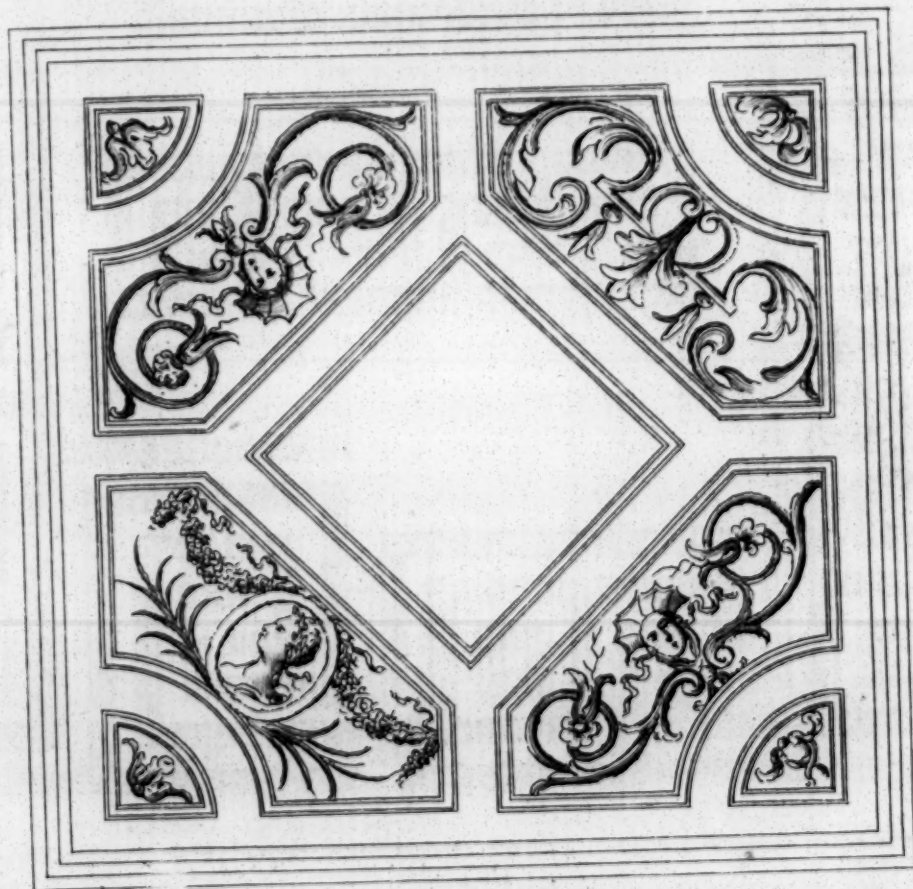
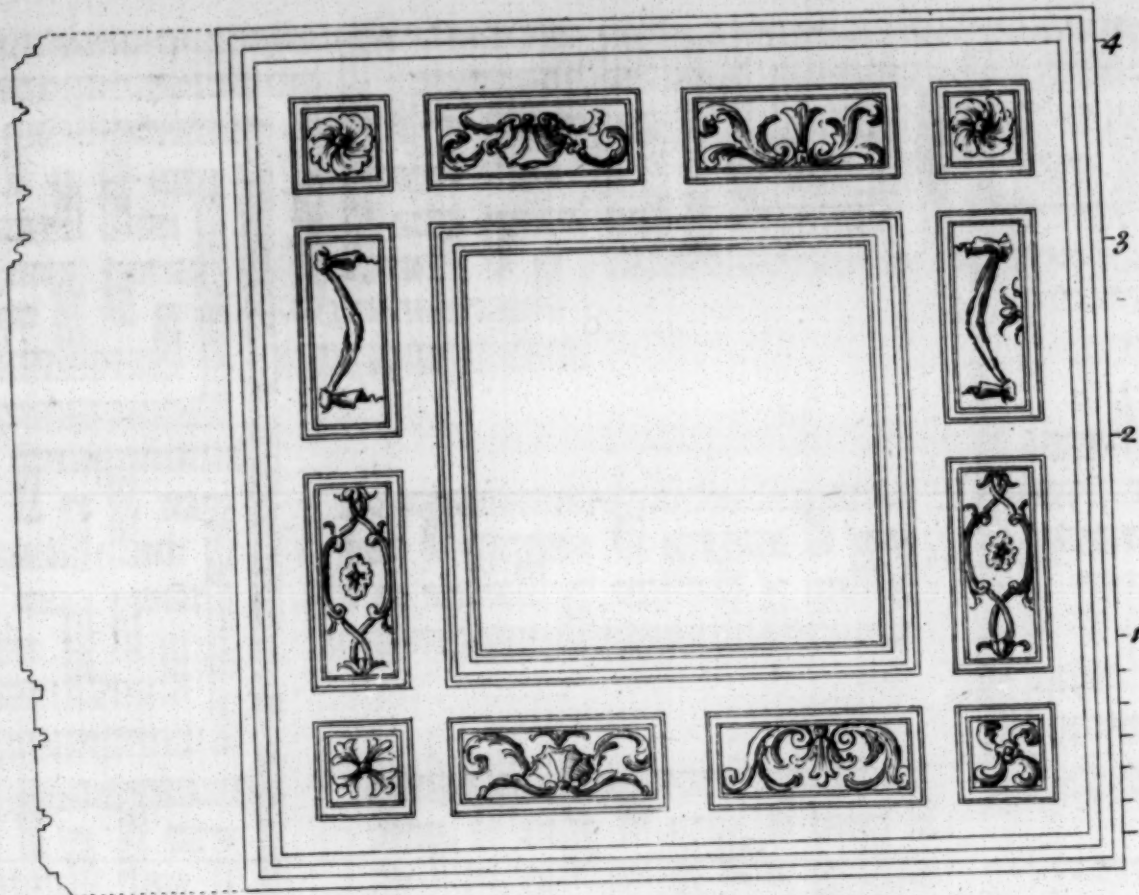
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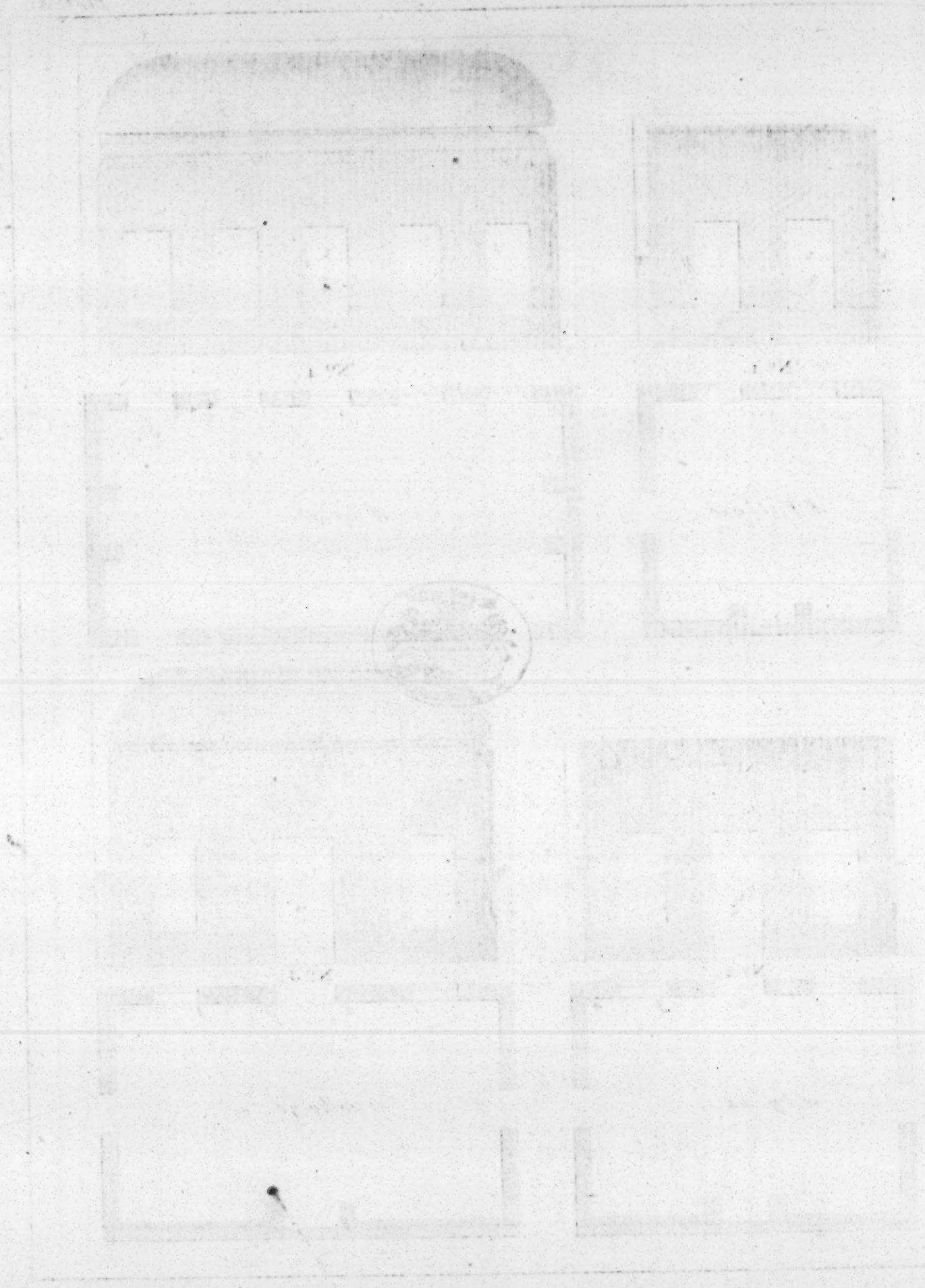


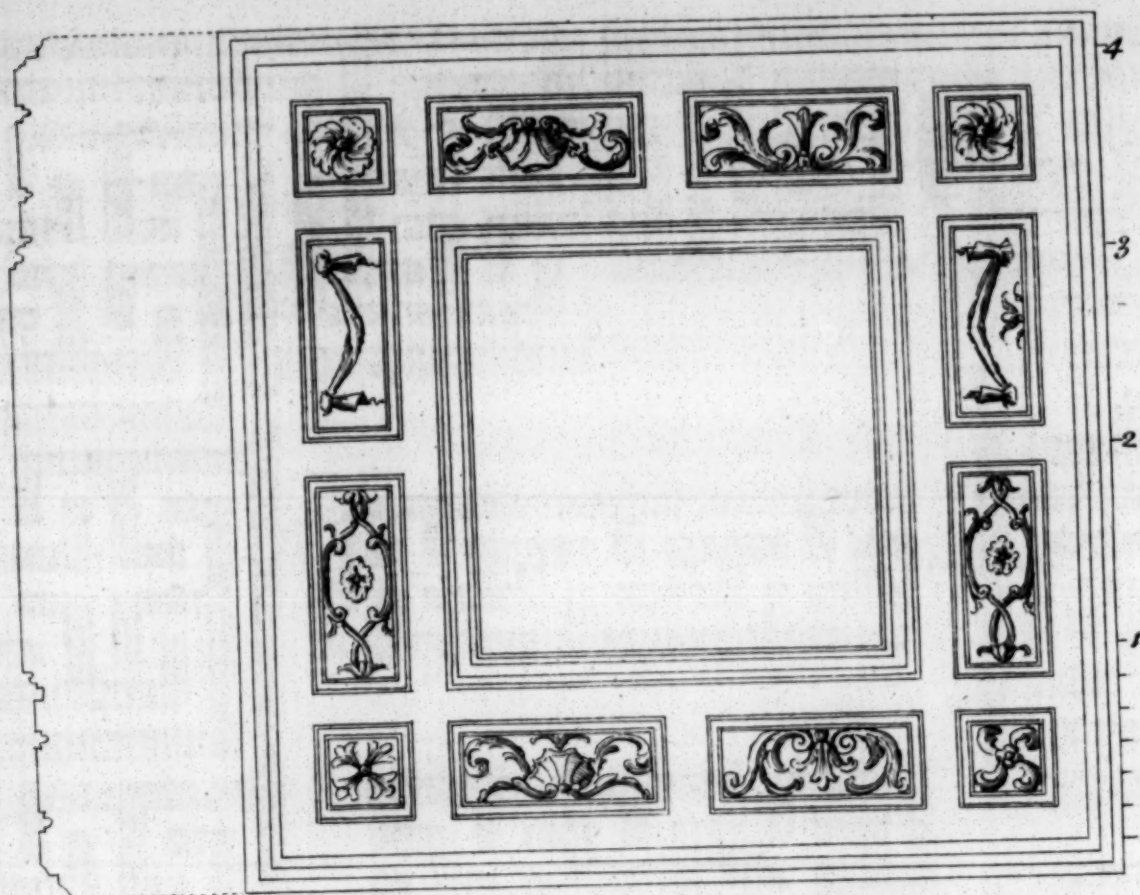
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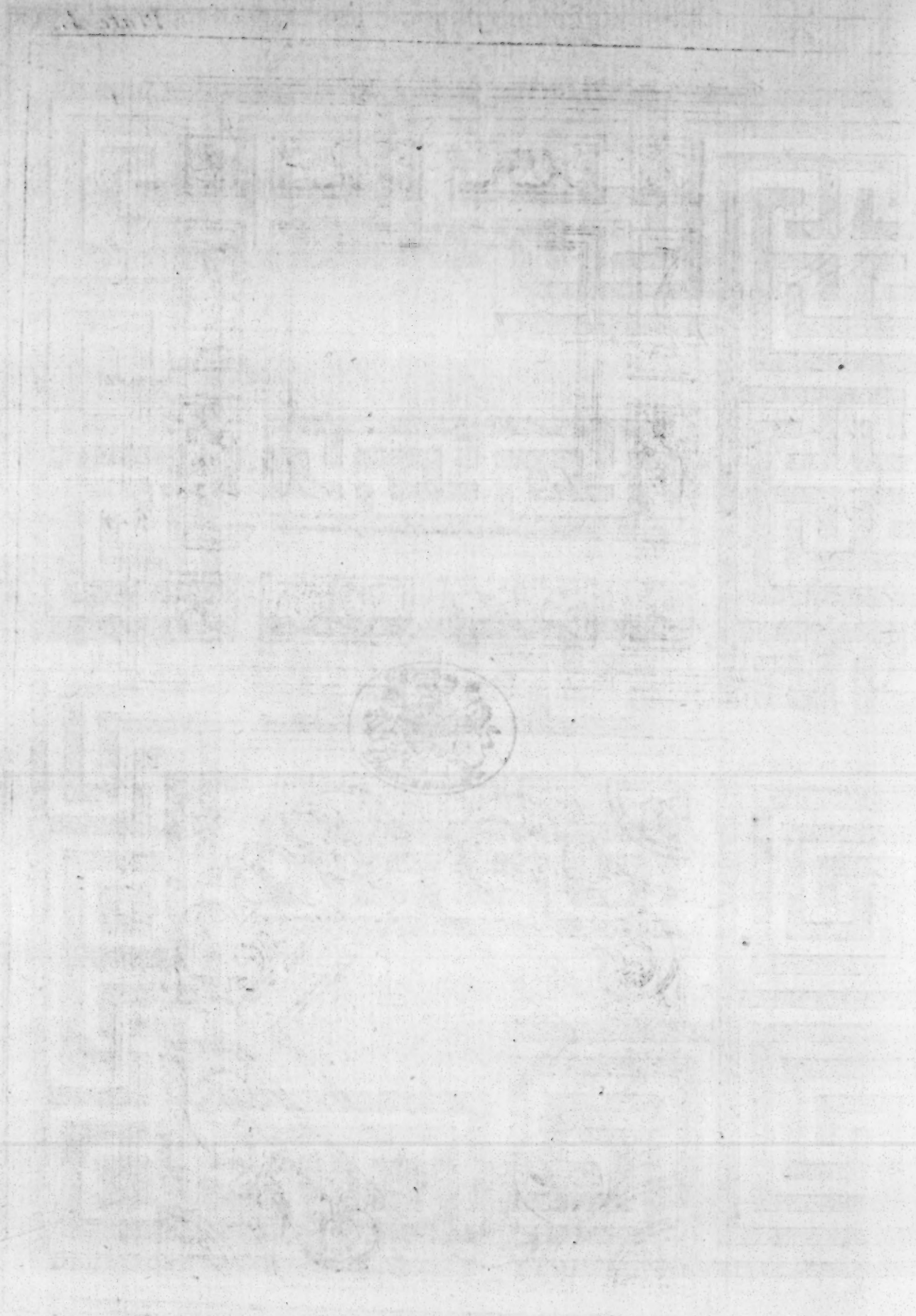


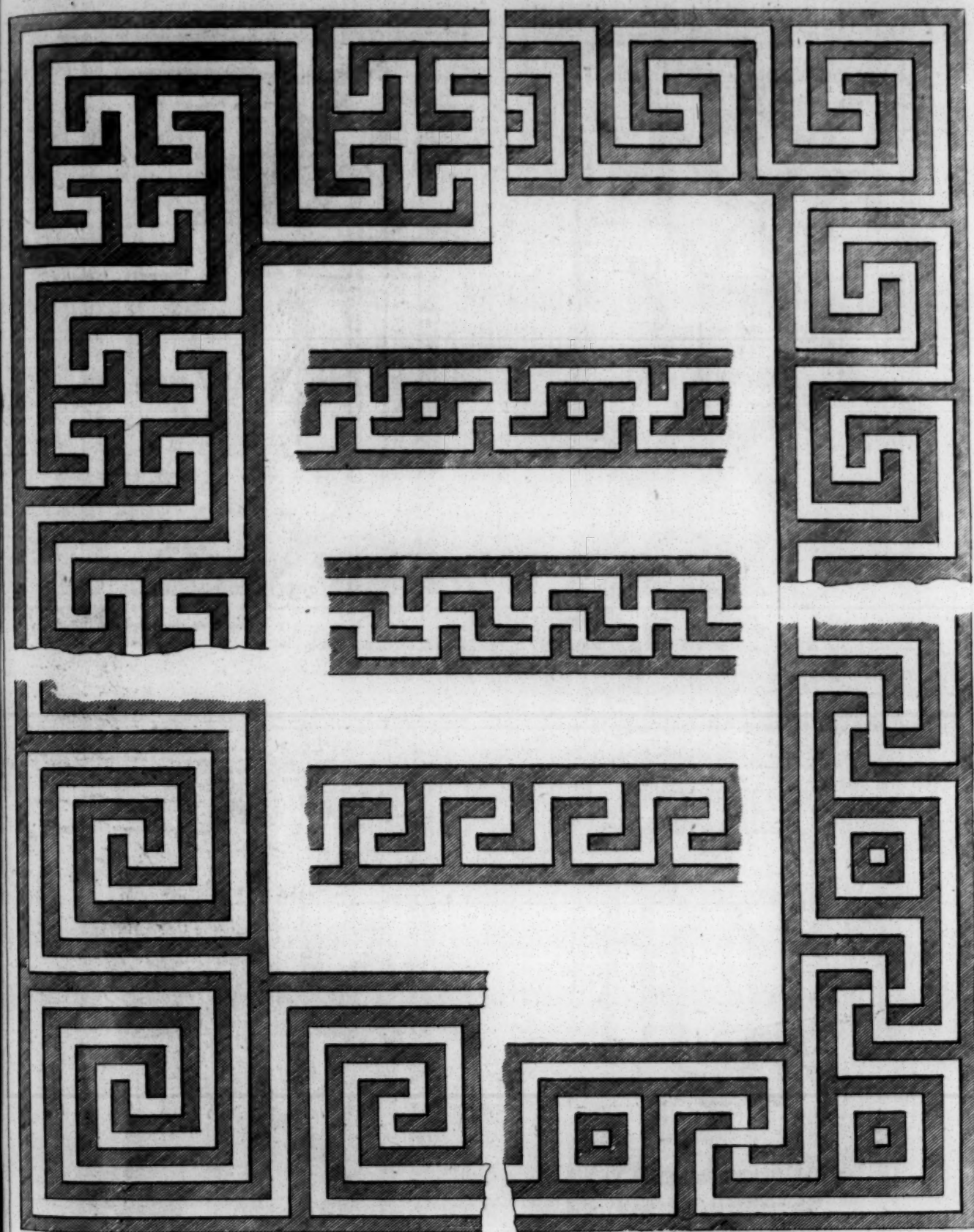




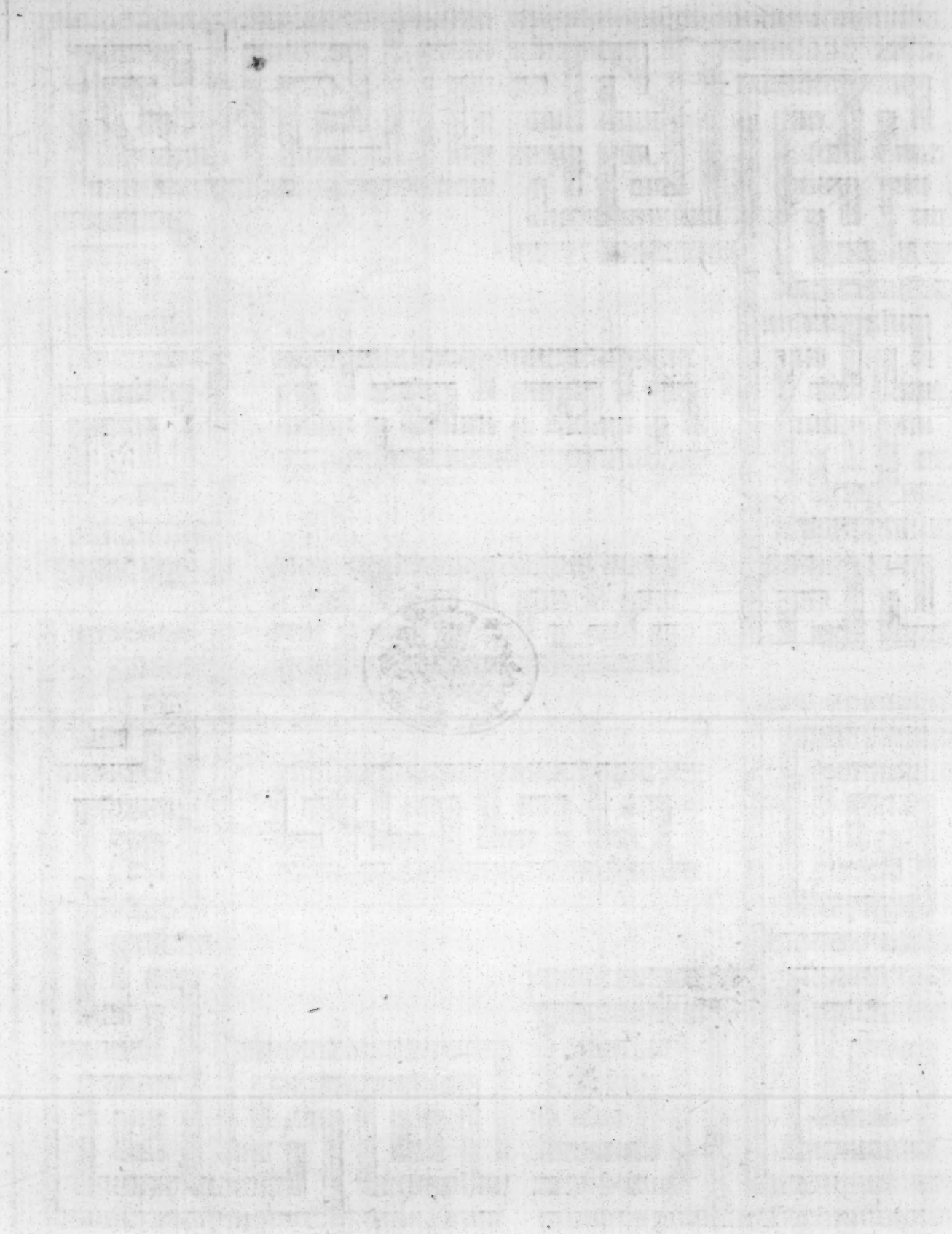




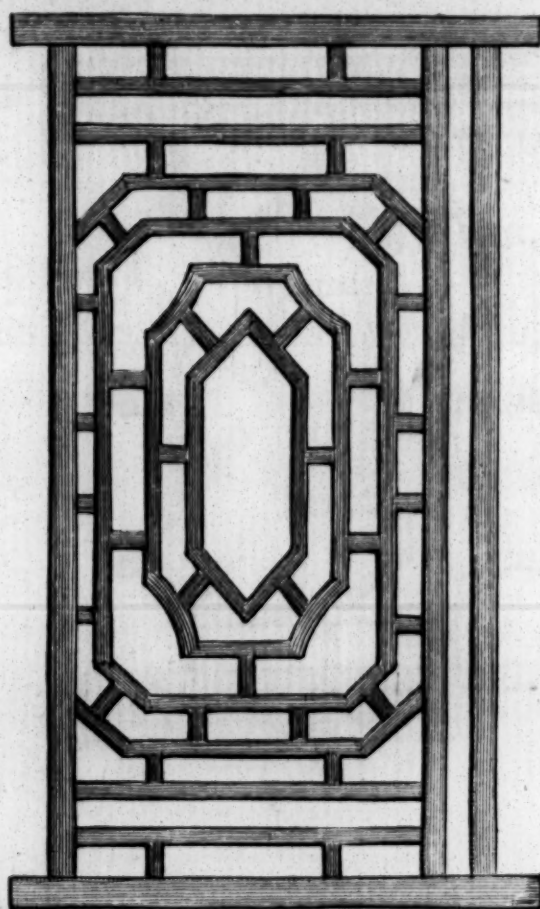
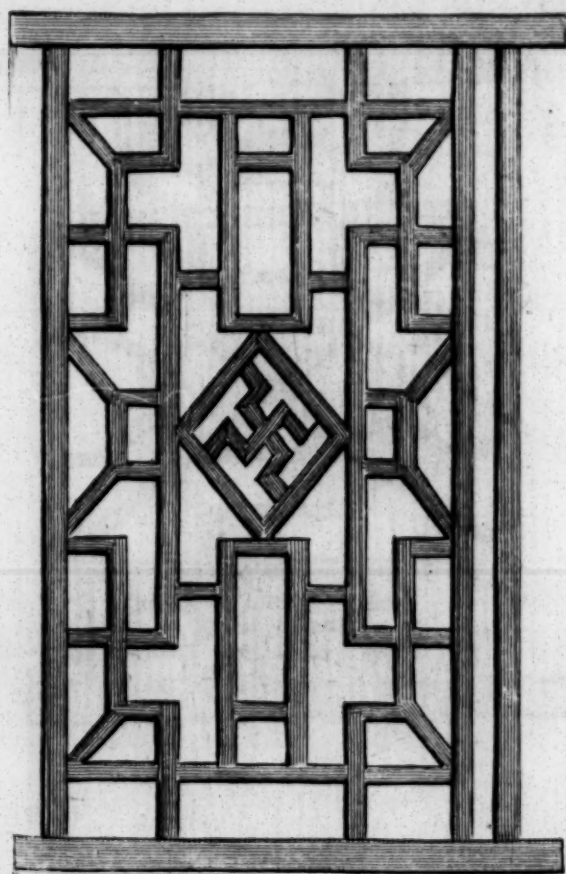
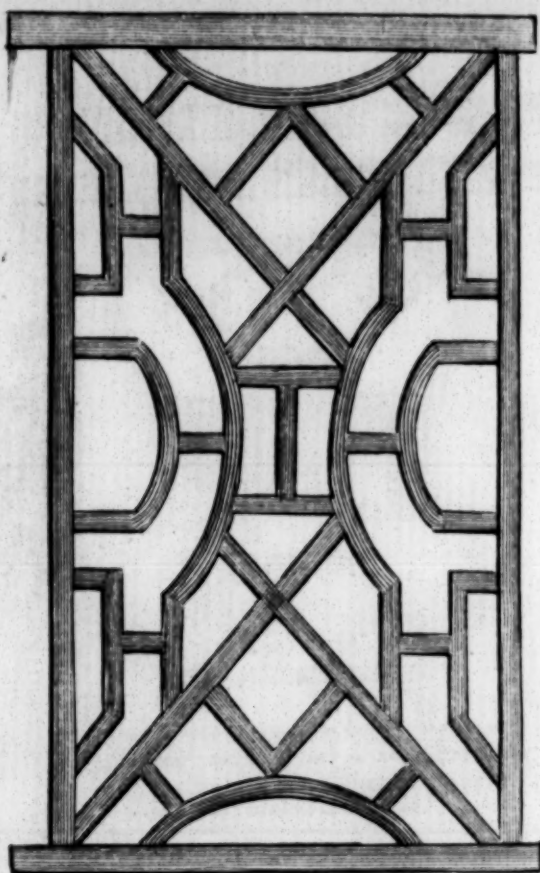
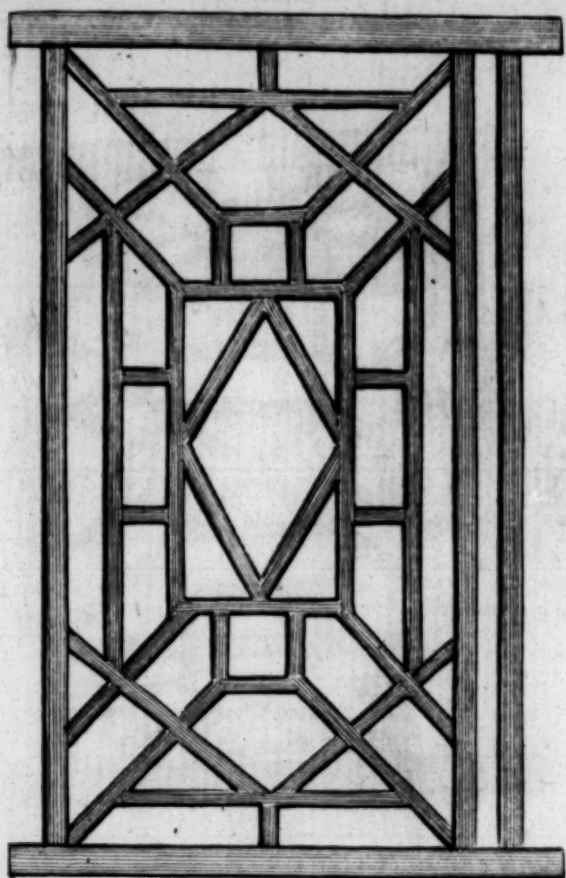


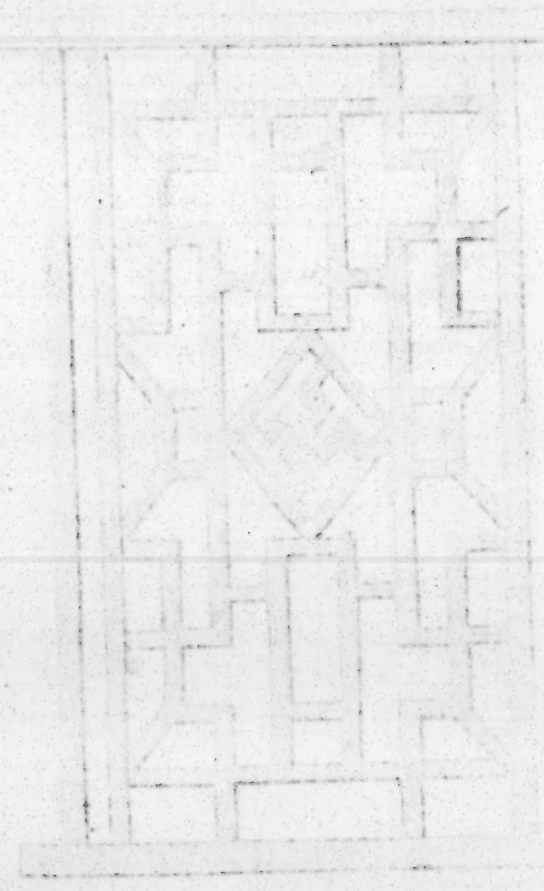
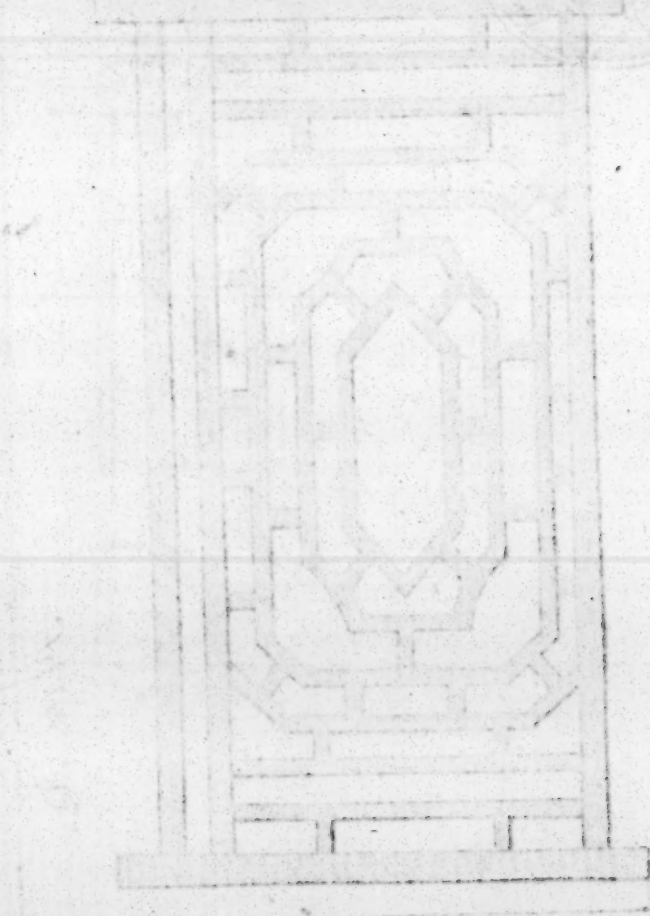
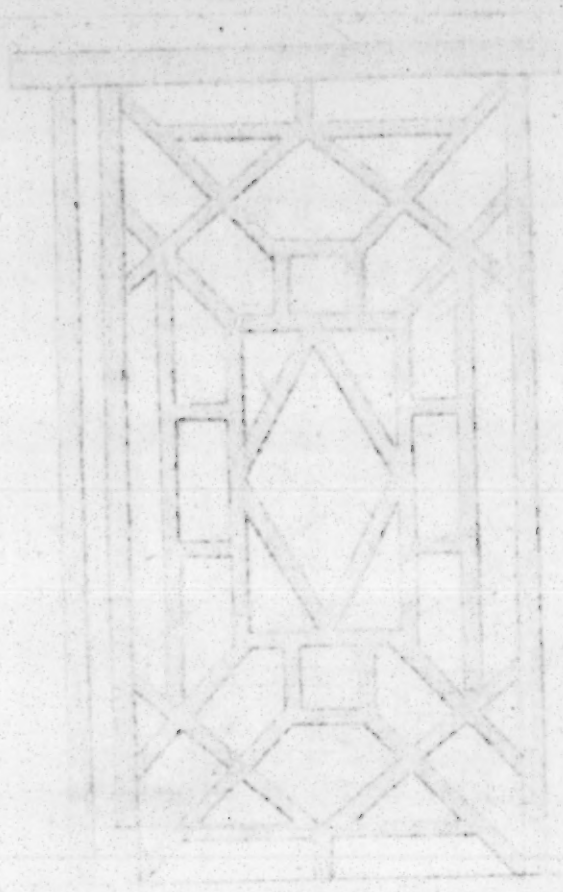
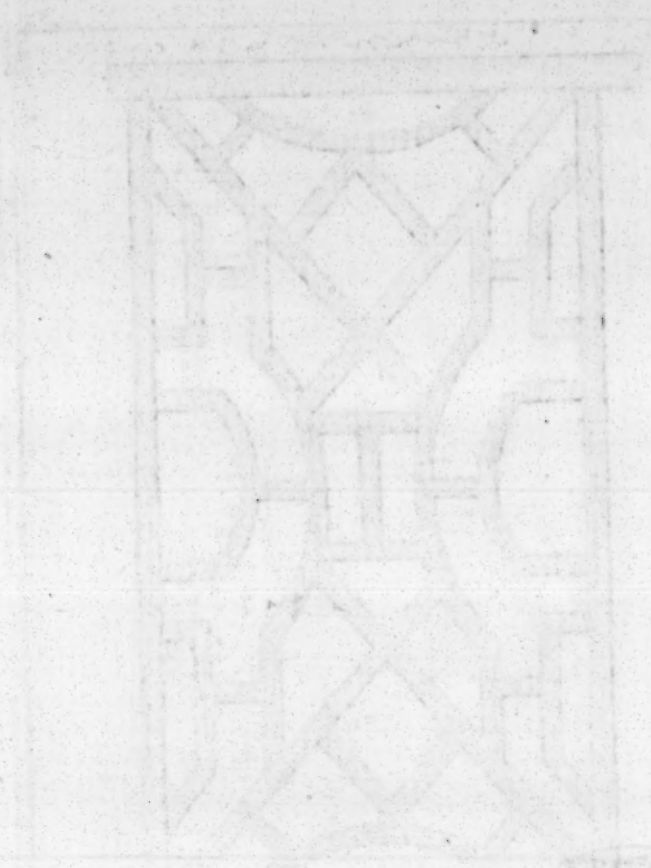


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Fect.





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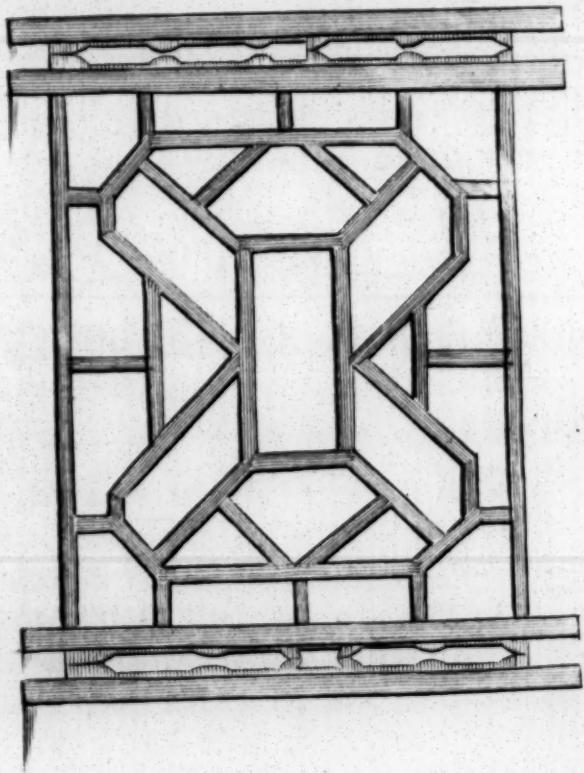
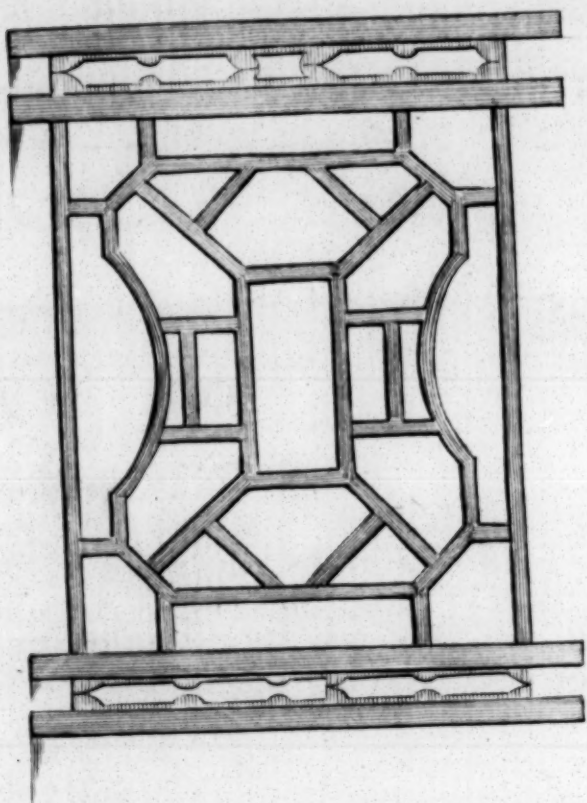
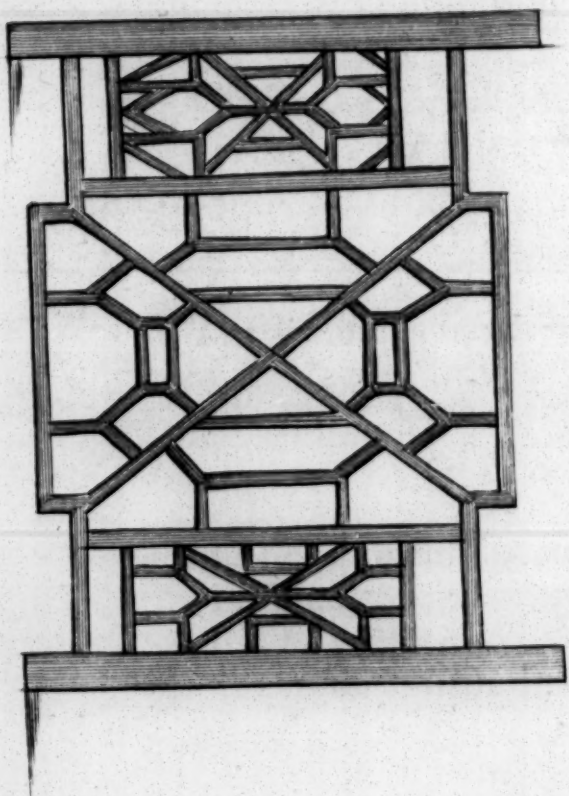
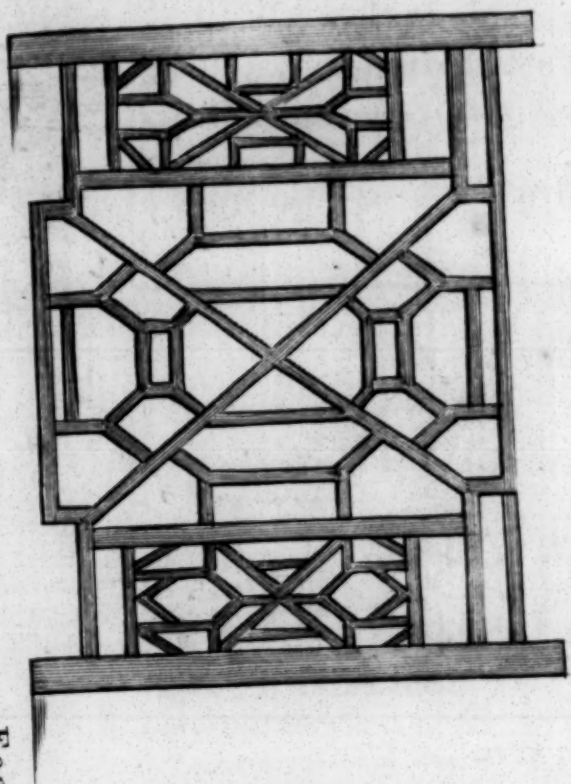
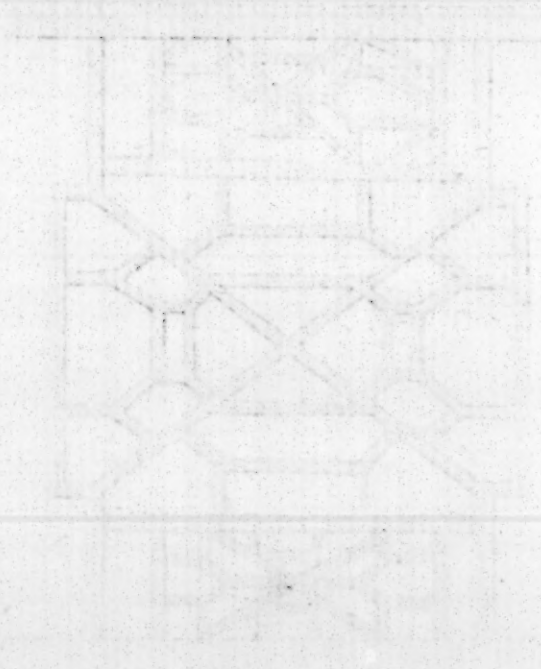
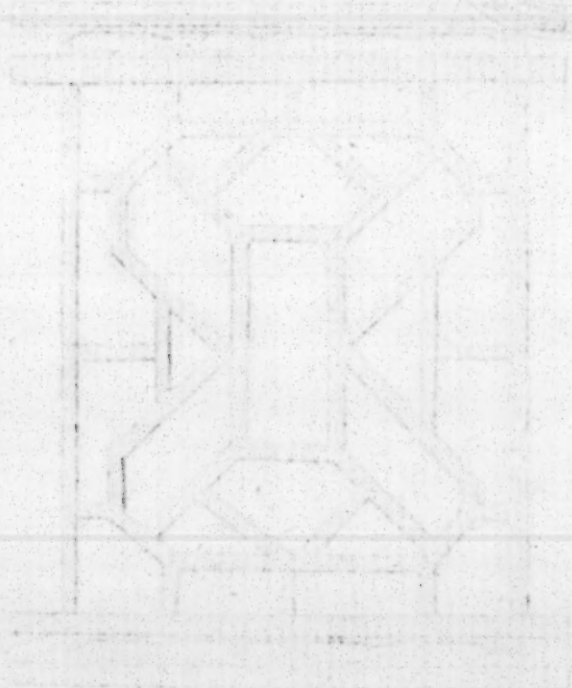
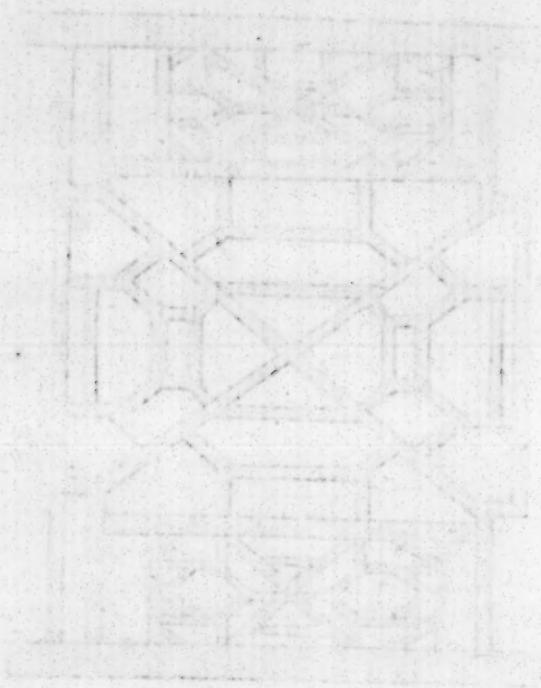
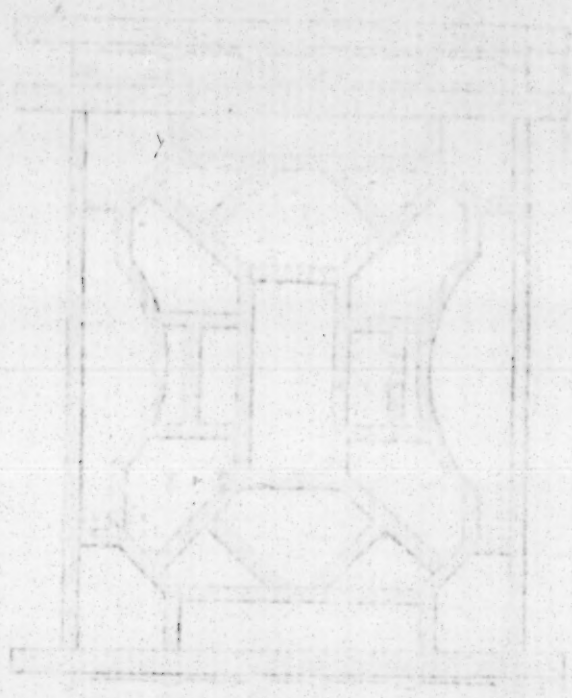


Plate R.



Feet,



Corner, let them be of any Form, which by a great many has been thought impracticable.

In the Middle is 3 smaller Frets, consisting of a Division of 7 Parts each, and are all different, but I have not continued the Corners round, though these are more easy; chusing rather to leave them for the Practice of young Beginners.

Chinese Lattice-Work for Gates, Pailings, Hatches, &c. Plates Q. and R.

CHAP. XXII.

Of the Assembling of Orders.

OBSERVATION I.

WHEN two Columns are placed over one another, they must be of different Orders; the Stronger always to support the Weaker. For Instance, the *Doric* may be placed over the *Tuscan*; the *Ionic* over the *Doric*; the *Corinthian*, or *Composite*, over the *Ionic*.

OBSERVATION II.

The upper Order must be always less massive than the under, agreeable to the Maxim, that the Stronger ought to support the Weaker.

OBSERVATION III.

The Columns ought to stand exactly over each other, so that their two Axis's may be both found in the same perpendicular.

OBSERVATION IV.

The Distances between the lower Columns must be determined by the Intercolumniations of the Order, that is, without Pedestals; and the Distances of the upper Columns by the Intercolumniations of the Order with Pedestals; taking care, by the way, that the

Q

first

first Order be mounted on a pretty high Zocle, or on an Ascent of several Steps, to serve instead of a continued Pedestal or Foot.

To the upper Order I give a Pedestal, because being confined to the Breadth of the Intercolumniation of the lower Order, its Columns, by this means, are rendered smaller; insomuch, that the Diameter of their Base does not exceed that of the Top of the under Columns, which is a Rule that ought not to be dispensed withal.

How to find the Module of an Order that is to be placed over another.
'Tis here proposed, for instance, to place the Ionic Order over the Doric.

Suppose in the first Order the Columns be placed at the Distance of 5 Modules from each other, in Portico's.

That in the *Ionic* Order with a Pedestal, the Columns are 7 Modules 30 Minutes a-part; and that to place this Order upon the *Doric*, you must divide the Intercolumniation of the lower Order, into seven and a half equal Parts; one of which seven and a half will be the Module for raising the *Ionic* Order upon the *Doric*. Or (which is a better Rule) the Diameter of the Columns of the upper Order, at the Base, must be equal to that of the Top of the under Columns.

Of Pilasters placed one over another.

As Pilasters are of the same bigness from top to bottom, one would imagine at first Sight, that to preserve a Regularity, the Pilasters placed one over another should likewise be of the same bigness; but there are two Reasons that oblige us to recede from this Rule.

The first is, that as the Orders increase in Delicacy, they likewise increase in Height, with regard to their bigness: So that were the Module to continue the same in the upper and under Pilasters, the Consequence would be, that the Orders and Stories would increase in Height, in proportion as they rise over one another, which would be preposterous.

The second Reason is, that if there should be Columns along with the Pilasters of the lower Order, the Diameter of the upper Pilasters

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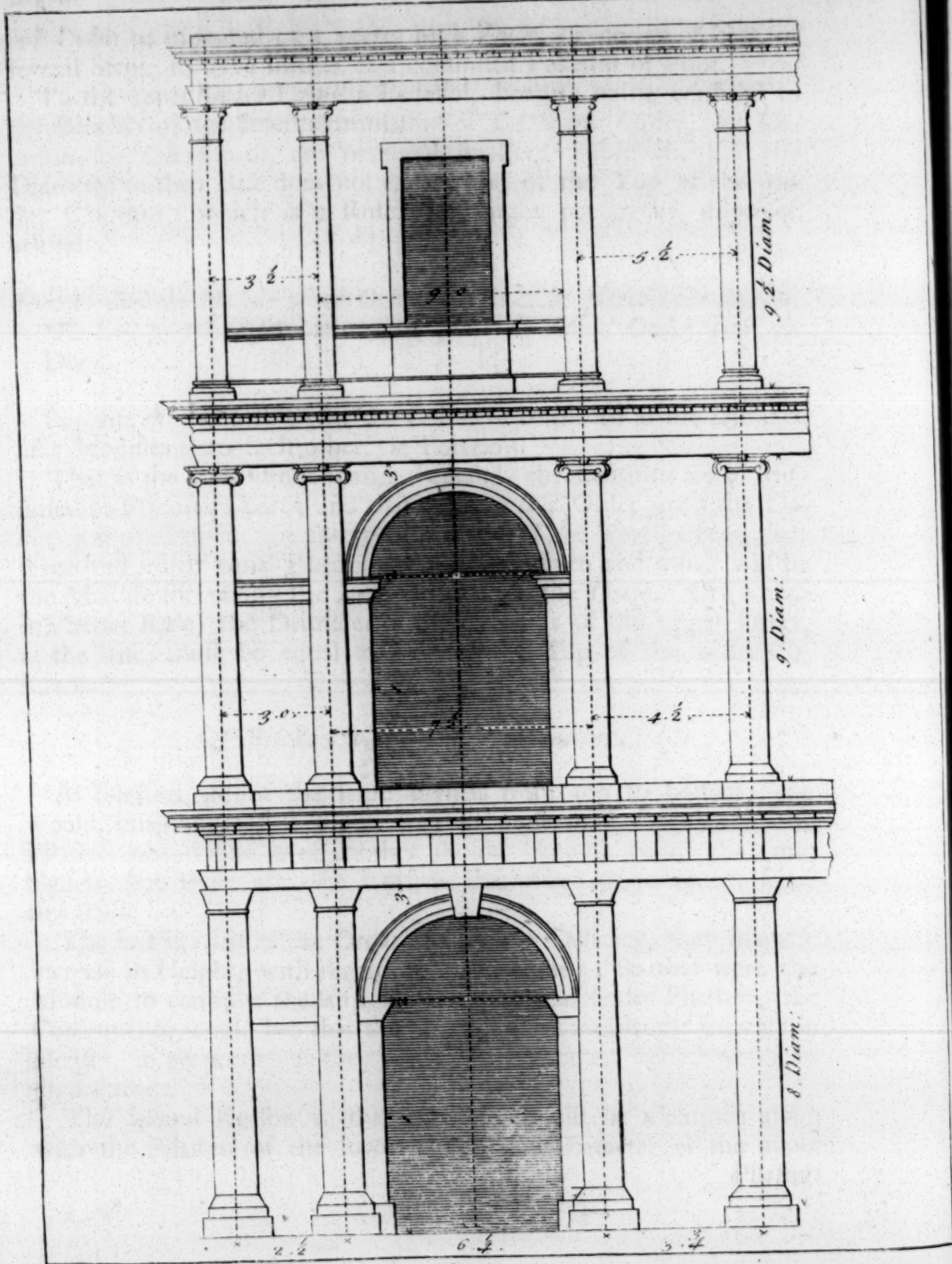
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Pilasters would be bigger than that of the Top of the Columns underneath, which would be another Fault.

One should never therefore place two Pilasters of the same bigness over one another, unless the upper be *Attic*.

In the assembling of Pilasters, all that is required, is, to examine how big the Base of the upper Pilaster may be, with regard to the Top of the under; for the Pilasters being always equally big at top as at bottom, it follows inevitably according to the preceding Rules, that, preserving the same number of Modillions in the two Orders, the upper Order always becomes less than the under, as in effect it should be.

P L A T E N.

Conformable to the above Rules is this Plate, where you have various Intercolumniations according to the Number of Triglyphs or Modillions between; thus in the *Doric* for one Triglyph is 2 Diameters and $\frac{1}{2}$; for 2 Triglyphs 3 and $\frac{1}{4}$; and for 4 Triglyphs 6 Diameters and $\frac{1}{4}$, from Center to Center. Here is also shewn how Arches may be used over each other, and each Part being figured cannot need farther Explanation.

The Beauty resulting from these Observations is sufficiently seen in those noble Piles of Building, the Banqueting House at *White-Hall*, and the new Treasury in *St. James's Park*.

THE
London ART and METHOD
OF
BUILDING.

PART the Third,
*Containing a DESCRIPTION of the several Sorts of STAIR-
CASES, and the Formation of all Sorts of TWISTED
RAILS whatever. Also Rules for finding the Pitch and
Manner of framing all Sorts of ROOFS, whether Square
or Bevel. Likewise the most Necessary and General
Rules to be observed in BUILDING.---With the BUILDERS
DICTIONARY; or, a COMPLETE EXPLANATION of the
most difficult Terms used by Workmen concerned in
BUILDING.*

CHAP. I.
Of STAIR-CASES.



REAT Care ought to be taken in placing of the
Stair-Cafe in any Building; and therefore Stair-Cases
ought to be described, and accounted for justly, when
the Plan of a Building is made; and for want of this,
sometimes unpardonable Errors have been committed:
Such as having a little blind Stair-Cafe to a large House, or, on the
other Hand, to have a large Spacious Stair-Cafe to a little one.

Palladio

Plate XXXI

Fig. 1

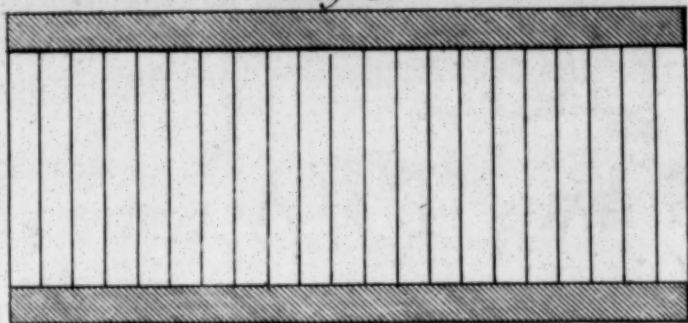


Fig. 2

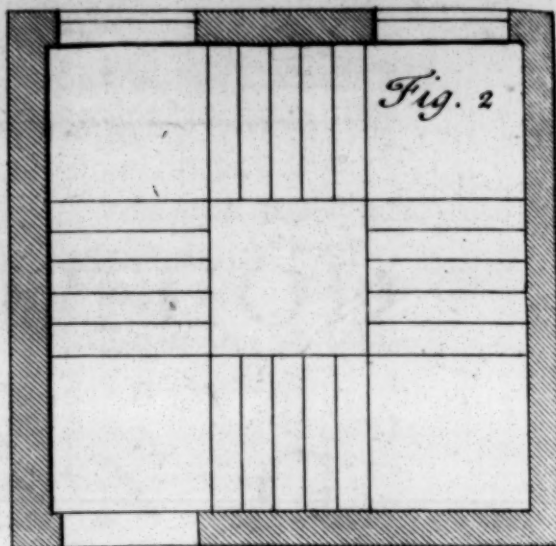


Fig. 3

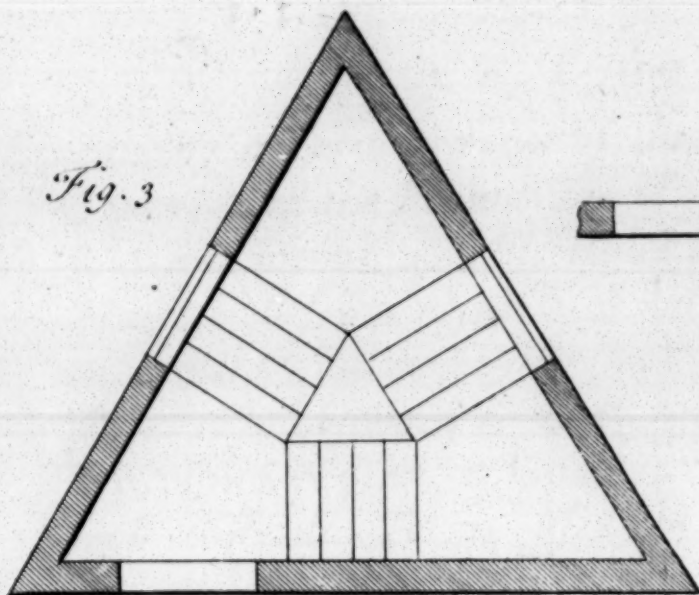


Fig. 4

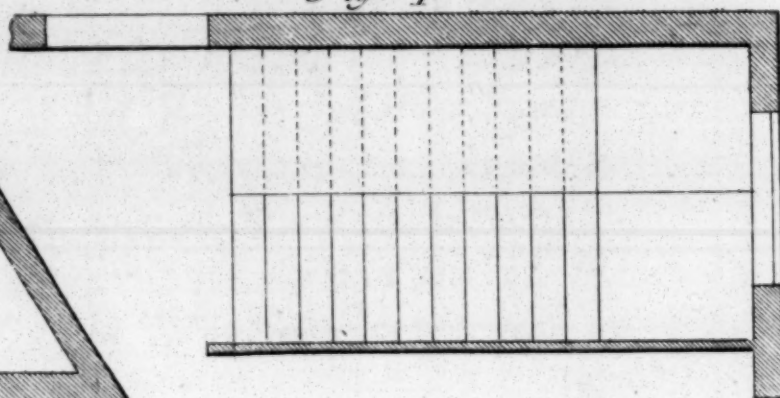


Fig. 5

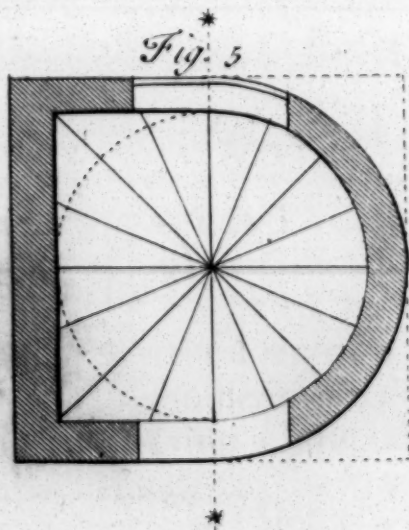
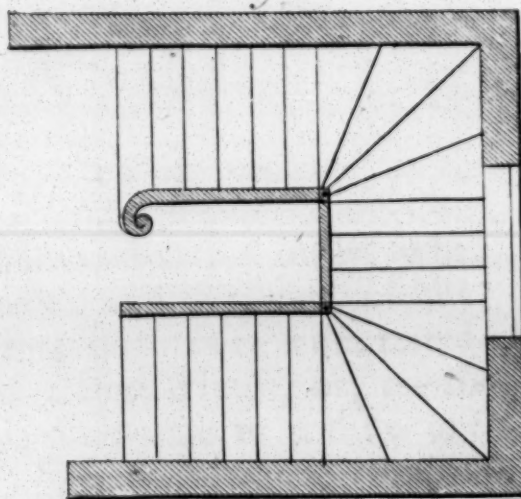


Fig. 6



Palladio says, in placing Stair-Cases the utmost Care ought to be taken, it being a Difficulty to find a Place convenient for them that will not at the same time prejudice the rest of the Building. But commonly the Stairs are placed in the Angle, Wing, or Middle of the Front.

To every Stair-Case are required three Openings.

First, The Door leading thereto.

Secondly, The Window, or Windows, that give Light to them; and, *Thirdly*, their Landing.

First, The Door leading to a Stair-Case, should be so placed, that most of the Building may be seen before you come at the Stairs, and in such a Manner, that it may be easy for any Person to find out.

Secondly, For the Windows; if there be but one, it must be placed in the middle of the Stair-Case, that thereby the whole may be enlightened.

Thirdly, The Landing of Stairs should be large and spacious, for the convenient entering into the Rooms: In a Word, Stair-Cases should be spacious, light, and easy in Ascent: The Height of large Steps must never be less than six Inches, nor more than seven Inches and half.

The Breadth of Steps should never be less than 10 Inches, nor more than 18 Inches; and the Length of them be not less than three Feet, nor more than 12 Feet.

In making of Stair-Cases, this Rule should be observed, That the Number of Steps at every Landing be odd, and not even; for thereby when you begin to ascend with your right Foot first (as all Persons generally do) you will end with the same Foot also.

C H A P. XII.

Of the several Sorts of Stair-Cases.

P L A T E XXXI.

First of making them.

THOUGH there are Rules laid down in the foregoing Chapter, for the Height and Breadth of Steps; yet Workmen are not to be so strictly tied to those Rules, as not to vary in the least from them:

them: For they must still observe to make all the Steps of the same Stair-Case of an equal Height and Breadth: To do which, they must first consider the Height of the Room, as also the Width, or Compass, they have to carry up the Stairs in.

Then to find the Height of each particular Step, they ought first to propose the Height of each Step, and by that proposed Height divide the whole Height of the Room; which done, the Quotient will shew the Number of Steps: But if the Division fall not out exact, but that there be a Remainder; then (in this Case) take the Quotient (not regarding the Remainder) for the Number of Steps, and by that Number divide the whole Height of the Room; so the Quotient shall give you the exact Height of each Step.

E X A M P L E.

Suppose the whole Height of the Room be 9 Feet 3 Inches, and suppose you designed to make each Step 6 Inches high, turn the whole Height of the Room into Inches, and divide those Inches by 6, the Quotient will be 18, and the Remainder 3; therefore take 18 for the Number of Steps, and by it divide 3, and the Quotient will be $6\frac{3}{18}$ Inches or $6\frac{1}{6}$ Inches, which must be the exact Height of each Step.

Then to find the Breadth of each Step, divide the Space or Compass (that you have to carry them up in) by the Number of Steps, the Quotient will shew you the Breadth of each Step.

The several K I N D S of Stairs.

There are many Kinds of Stair-Cases; for in some the Steps are made strait; in others, winding; in others, mixt of both. Of strait Stairs, some fly directly forward; others are Square; others Triangular; others are called *French* Flights, or Winding Stairs (which in general are called Spiral or Cockle-Stairs) of which some are Square; some Circular, or Round; and some Elliptical, or Oval; and these again are various; for some wind about a Solid; others, about an Open-Newel. Stairs mixt of strait and winding Steps are also of various Kinds; some are called Doglegg'd; some there are, that wind about a Solid-Newel, and others that fly about a Square Open-Newel.

There might be a larger Description given of every one of these Kinds of Stair-Cases; but if these are well understood, it will be easy to compose other Sorts from the following Figures.

Of

Of Strait-Stairs. Fig. 1. P L A T E XXXI.

These are such as always fly, and never wind, and are by some called Flyers, going directly from one Floor to another, without turning to the Right or the Left.

Square-Flyers. Fig. 2.

These fly round the Sides of a square Newel, either solid or open, and are of two Kinds, and at every Corner of the Newel there is a square Foot-pace that takes up a $\frac{1}{4}$ of a Circle.

Triangular-Flyers. Fig. 3.

These fly round by the Side of a Triangular Newel, either solid or open, and are of two Kinds. At each Corner of the Newel is a Trapezial Foot-pace, that take up $\frac{1}{3}$ of a Circle; the Length of the Stairs is at right Angles with the Side of the Newel.

French-Flyers. Fig. 4.

These kind of Stairs, first fly directly forward, till they come within the Length of a Step of the Wall, and then they have a Quarter-pace; from which you immediately, without any Steps between, ascend to another Quarter-pace; and from this second Quarter-pace the Stairs fly directly back again, parallel to the first Flight.

Winding-Stairs. Fig. 5.

These are such as always wind and never fly: There are many Kinds of these Stairs that wind round either a Circle, an Oval, a Square, or an Equilateral Triangle; and of each of these, some wind round a solid Newel, and others round an open or hollow Newel.

Mixt-Stairs. Fig. 6.

These are such as do both fly and wind; and therefore are by some called by the general Name of Flyers and Winders: Here is also shewn a twisted Rail at the beginning of the first Flight, and the manner of forming it; see the next Chapter.

C H A P. III.

To form the Arch, or Mould, to the Hand Rail of a Pair of Stairs, which is to be circular, Part of the two first Steps, so as to make it stand perpendicular over the Ground, or Plan, and the Manner of Squaring the Rail without setting it up in its Position.

P L A T E XXXII. Fig. 1.

HAVING concluded on the Breadth, or Tread of the Steps, and Bigness of the Rail intended, with the Projections and Form of the Mouldings in Fig. 2, continue out the Front of the second Step between A and B; and on it describe a Circle, which shall touch the Inside of the Rail, and whose Diameter is equal to the Breadth of two Steps; which divide into eight equal Parts. Then on the same Center describe a Circle equal to the bigness of the Rail, Fig. 2; also another Circle as much larger as the Projection of the Mouldings, as *a, b, c, d*.

Draw the Diagonal Line *ef*, and describe the Part of a Circle, *ag*, which divide into eight equal Parts, and continuing them from the Center *e*, to the Line *t b i k l m n o a*, you have the diminishing Scale for the Formation of the Scroll.

Next, setting off, within the great Circle, the respective Distances *fb, fi, fk, fl*, on each eighth Part of the Circle, and taking the Distance from the Center *C* to *f*, find the Center in the Eye, or Block, as at *f*, for the first eighth Part of the Scroll, then the Distance *Cb* for the next eighth, and so on, till you have the Scroll coming into the Block at one Revolution of a Circle.

Here observe, that the inside Scroll, though drawn from the same Centers, must not meet on the eighth Parts of the great Circle, but on a Line drawn to each respective Center.

If you would have a Scroll to make a greater Revolution, as Fig. 3. describe a Circle whose Diameter is equal to 3 Steps, and divide the diminishing Scale into 12 Parts, and striking one eighth of the great Circle at a time, as before you have the Scroll, at one Revolution and half of a Circle.

But

But requiring it still larger, describe a Circle whose diameter is equal to the Breadth of 4 Steps, and dividing the diminishing Scale into 16 Parts, you have the Scroll at two Revolutions of a Circle.

This I think is plain enough by Inspection.

To square the Rail.

A Mould must be traced out to find a Sweep, which if applied on the Rake, will answer to the Ground of r, s, p, q , as *Fig. 4*; but observe, there will be Wood required extraordinary, both on the Top of the Rail, as at a, b , in *Fig. 5*. and also at the Bottom, as c, d . For the discovering of how much it must be, take notice, where the Twist begins in the Plan, *Fig. 1*, as r, s ; and also that at k the Twist ends. Therefore let the Distance from r to k be divided into a Number of equal Parts, and transfer them on some Line, as from r to k , *Fig. 6*; then take the Distance r, t , and apply it to the Pitch-board (which is the Rise and Tread of each Step) *Fig. 7*, as from a to b , and raise the Perpendicular b, c ; then in *Fig. 6*, from the End of the Line r , make the Triangle r, e, d , equal in all respects to that of a, b, c , *Fig. 7*.

Lastly, Dividing from e , to d , and from e , to k , into eight equal Parts, and drawing strait Lines from each Division, you will form a Curve, shewing how much Wood is required on the Back of the Rail, as p, q , which transfer from b to a , in *Fig. 5*, and there describe the Bigness of the Rail, which shews the Deficiency of Wood as above-mentioned.

The other Part of the Twist from p to k , as also the Block (which is level) is cut out of a parallel Piece.

For tracing the Mould, *Fig. 4*. Take (in *Fig. 1*.) from r , to t , and apply it to the Pitch-board, *Fig. 7*, from a to b , it gives the Hypothenuse a, c , which transfer to *Fig. 4*, from a , to b ; also in *Fig. 1*, take from p to q , and apply it to *Fig. 7*; from a to d , it gives a, e , which place in *Fig. 4*, from c , to d ; which done, trace out the Raking Mould D, by the Interfection of Lines squared from the Divisions of the Plan r, p , and s, q , *Fig. 1*. which is easily comprehended by Inspection, and when elevated to the proper Pitch, will stand exactly over the said Plan.

R

So

So that this Mould being apply'd on the Top of the Rail, and the Mould, *Fig. 6*, on the Inside thereof, in their respective Places, and marking them by, and cutting away the superfluous Wood, you have two Sides of the Rail squared, and the other two are found by gauging from them.

I must confess, for this Method of forming twist Rails, I have had my Eye upon, and am obliged to, my Ingenious Friend, Mr. *Francis Price*, in his *Treatise on Carpentry*, lately published; though on comparing them, you will not find them alike.

This Method of forming the Raking Mould, will serve for all twist Rails whatsoever, with due Application, as shall be shewn in another Example of a Stair-Case, having a circular Well-hole.

Fig. 8. Is the Plan of a circular Rail having 16 Steps in the whole Circumference; but here it is proposed to find the Raking Mould to a fourth Part thereof, or 4 Steps, it being to a small Scale.

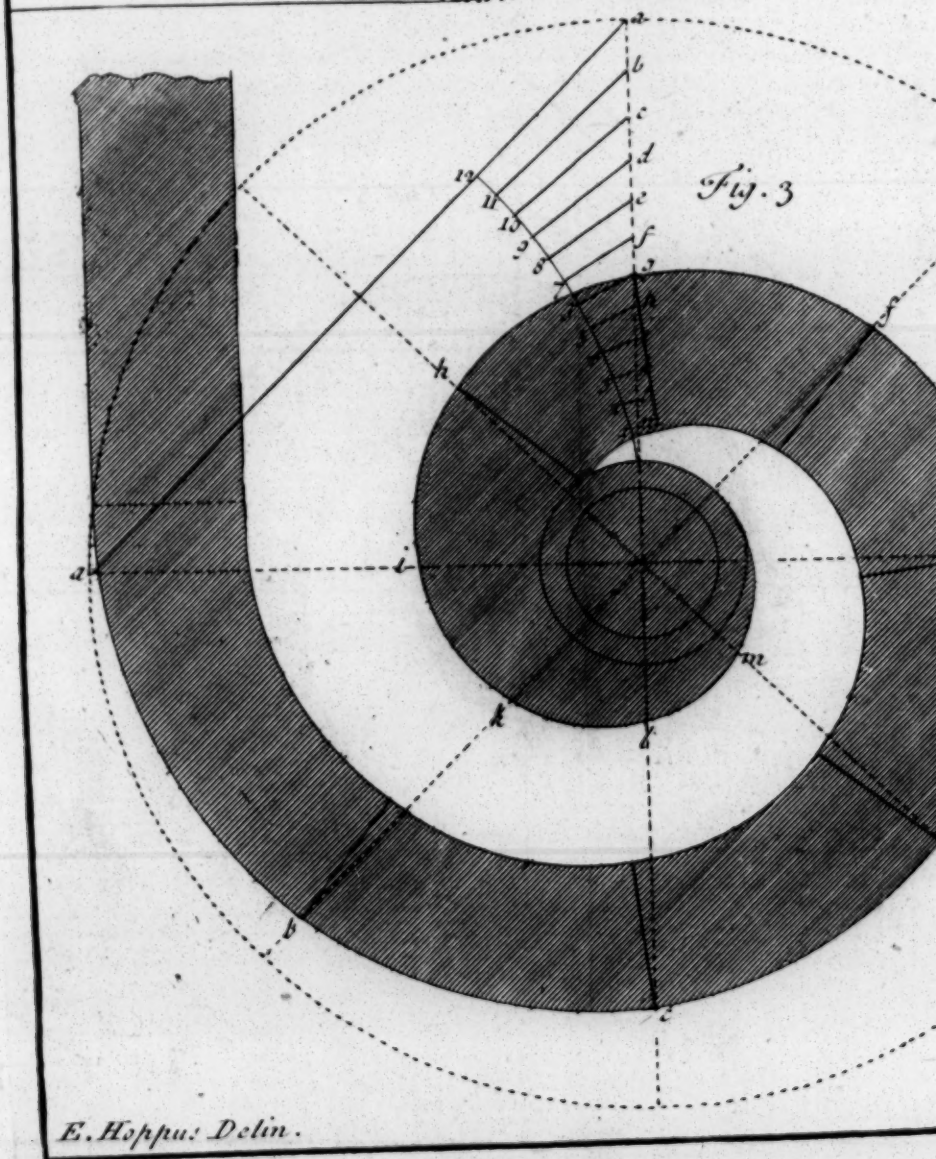
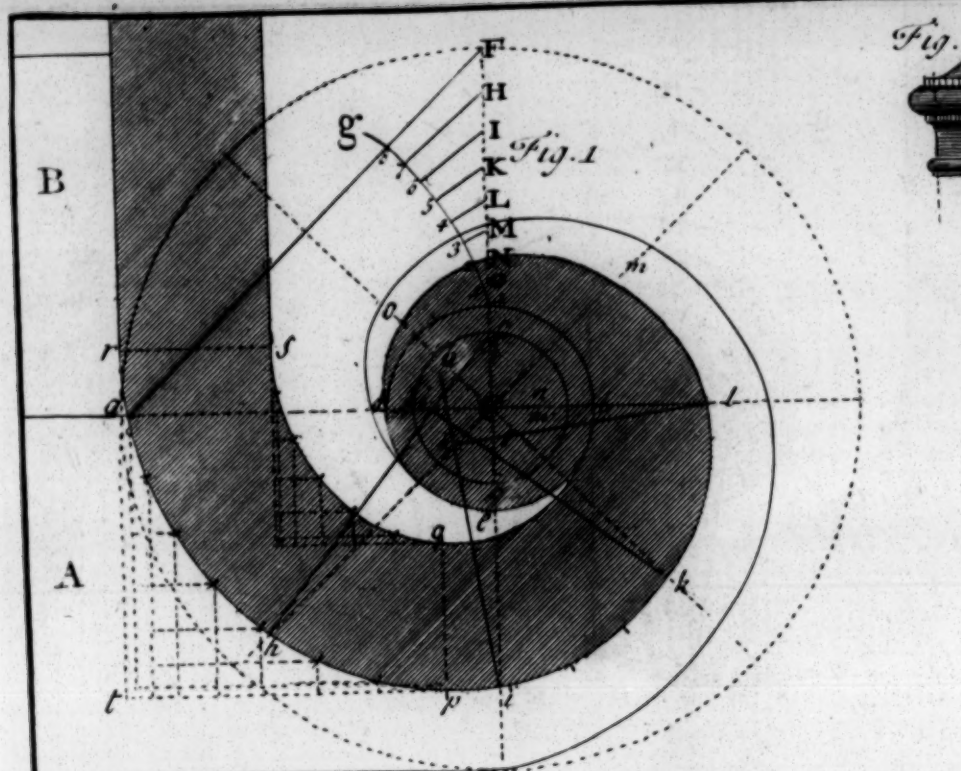
The Plan being laid down, as *a c d e*, *Fig. 8*, divide the outer Circle into a Number of equal Parts, so as to transfer them on some Line, as *a c*, *Fig. 9*; and setting up the Rise of 4 Steps, as *a b*, gives the Pitch-board, due to them all. Then taking *b c*, in *Fig. 8*, apply'd to the Pitch-board, *Fig. 9*, from *c* to *d*, it gives *c e*, which transfer to *Fig. 10*, from *b*, to *c*: Also from *Fig. 8*, take *a d*, placed in *Fig. 9*, from *c* to *g*, gives *c f*, which transfer to *Fig. 10*, from *a* to *d*; and there tracing, as before taught, you will form the Raking Mould required.

Some able Workmen have another Method of forming this Rail.

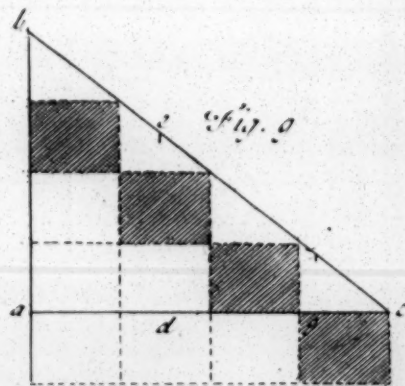
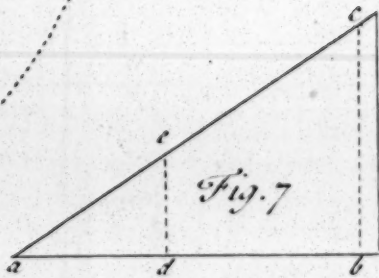
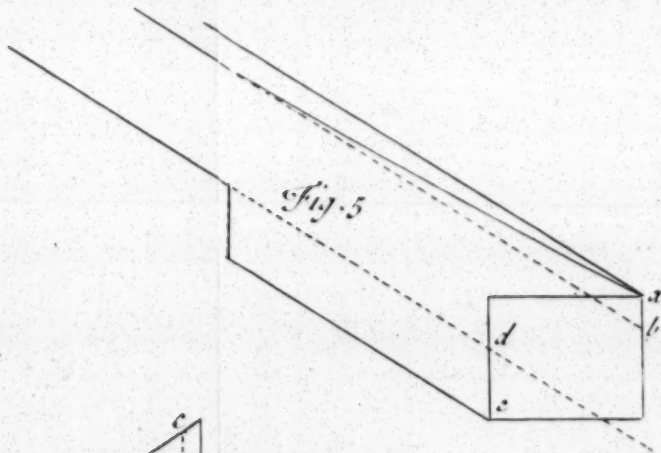
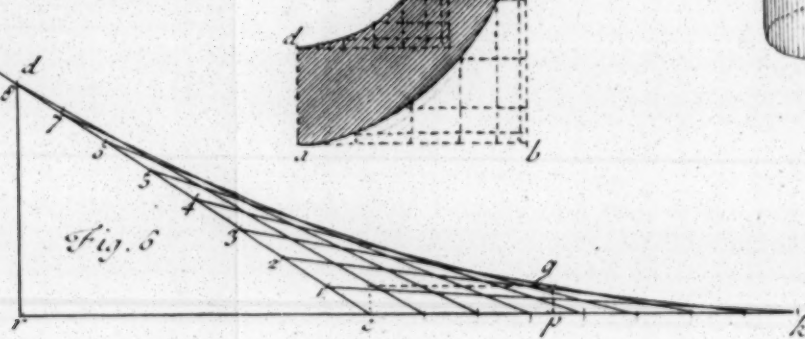
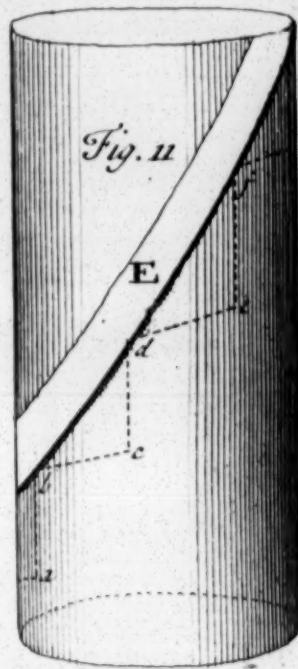
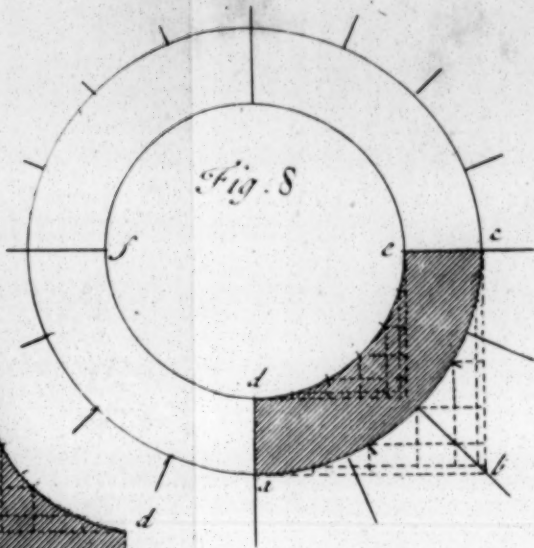
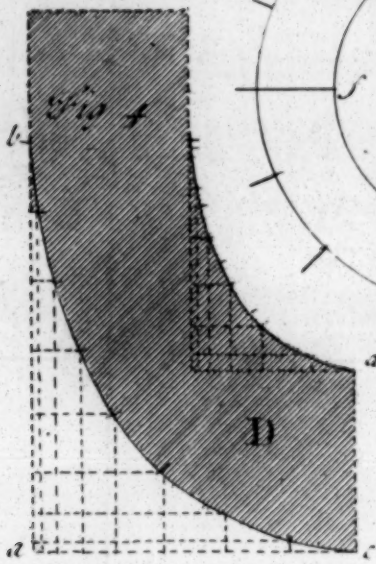
First, They make a Cylinder, equal to the whole Well-hole *f, e*, in *Fig. 8*, or part thereof, either solid (if the Well-hole be small) or (if large) by fastening Boards together upright in the exact Form of the Plan.

Then they proceed to set on the said Cylinder, as *Fig. 11*, the Height and Breadth of each Step, as *a, b, c, d, e, f, &c.* and to the extreme Points, *b, d, f*, they bend round several thin Pieces of the Breadth of *c, f*, in *Fig. 9*, and being glued, or otherwise fastened together, till they make the Thickness of the Rail, as *E*. I say these, when taken off from the Cylinder, will be the Rail, and exactly squared to the right Twist.





E. Hopps: Delin.



B. Cole Sculp.

Fig. 1.

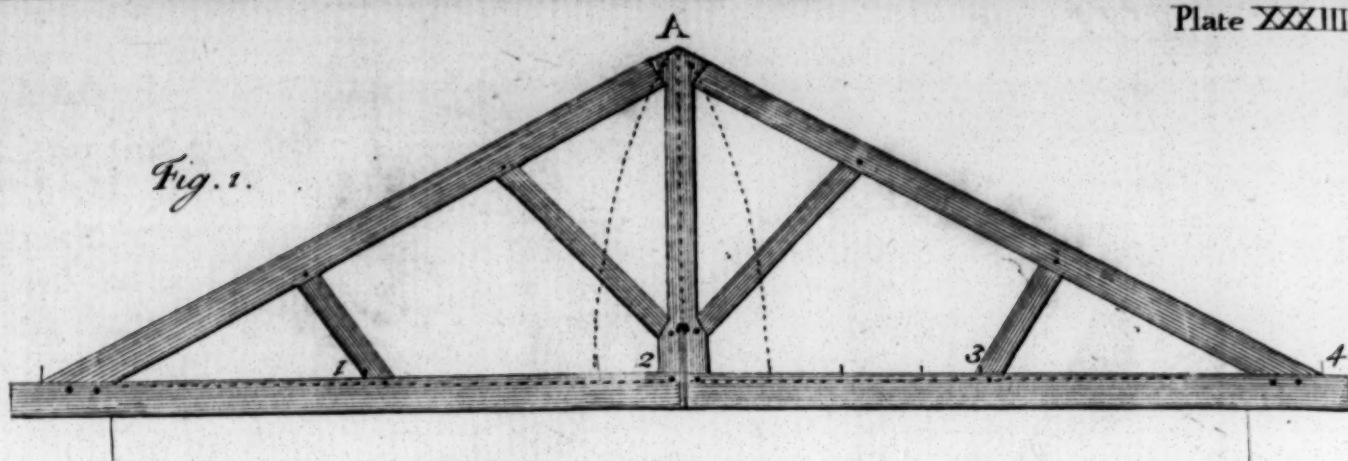


Fig. 2.

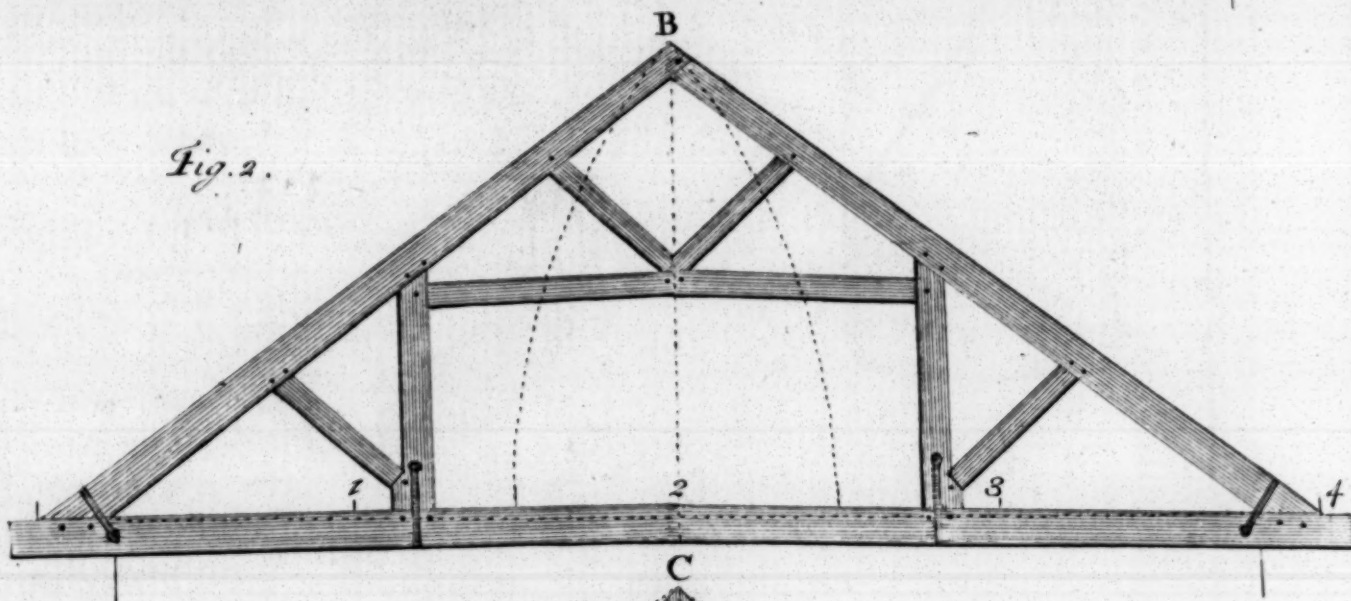
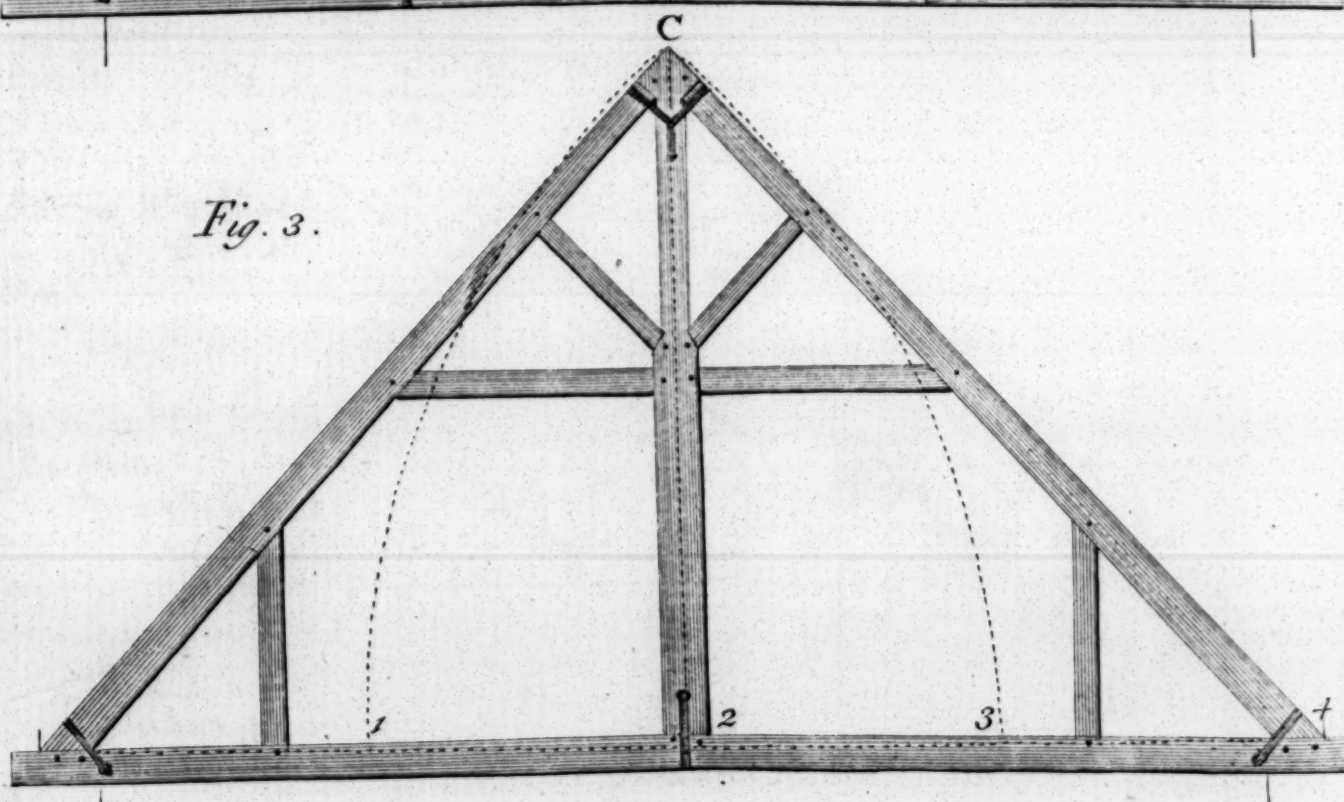


Fig. 3.



This is a very safe and sure Method, though not very frequently made use of.

Either of these Ways will serve, should the Well-hole be an Ellipsis, or any other Figure for its Plan.

C H A P. IV.

Of R O O F S.

P L A T E XXXIII.

THE first Thing to be considered in Roofs, is the covering wherewith the Building is to be inclosed, as Lead, Pantiles, Slates, or Plain-Tiles; they each requiring more Pitch, or Slope, than the other, for which observe the following Rules.

Fig. 1. *Is a proper Pitch for covering with Lead.*—To find the perpendicular Height, divide the Breadth of the Building into 4 equal Parts, and subdivide the Part between 1 and 2, or 2 and 3, also into 4 equal Parts.

Then take half the Building, and one of those Parts for the Length of the Rafter, which said Length being used as a Radius, describe the Arches intersecting in A, which gives the perpendicular Height.

Fig. 2. *Is a proper Pitch for covering with Pan-Tiles and Slate.*—To find the perpendicular Height, divide the Breadth of the Building also into 4 Parts: Again, divide one of the middle Parts into 2, and take half the Building and one of those Parts for the Length of the Rafter, which will intersect in B the perpendicular Height.

Fig. 3. *Is a proper Pitch for covering with Plain-Tiles.*—To find the perpendicular Height, divide the Breadth of the Building also into 4 Parts, and take 3 of these Parts for the Length of the Rafter, which will intersect in C the perpendicular Height.

This is called true (or common) Pitch, it being most in Use.

In these three *Examples* is also shewn the Manner of framing Timbers on the Beams, which serve to truss and strengthen the principal Rafters, which ought always to be carefully observed.

But to render this Treatise more useful, I have in the following Plates added a large Variety of Truss-Roofs.

PLATE XXXIV.

Fig. 1. Is a flat Roof, having but $\frac{1}{8}$ of the Span for its perpendicular Height, and must be covered with Lead, and the Rafters thus joggled into the Beams (which are made Camber) will be very substantial.

Fig. 2. Is another flat Roof, rising somewhat higher, the Perpendicular being $\frac{1}{6}$ of the Span, and with these Trusses will be exceeding strong; also here is shewn how Drips may be made to walk on, as A.

Fig. 3. Is a Roof partly flat, of a different Kind to all the others; it rises $\frac{1}{4}$ of the Span, and by scarfing, or piecing the Beams together in this Manner, will be capable of spanning any Breadth whatsoever; and if Room should be wanting in the Middle of the Roof, the Braces B and C may be omitted.

PLATE O.

 The Reader may take Notice, that the Engraver, by mistake, has made the Grain of the Timber in the Plates O and P to run the wrong Way.

On this Plate you have 3 more different Designs of Roofs. The first is for a Curve Ceiling; and although the Beam or Tye be hereby interrupted, yet by this Manner of a Truss, this Roof will be exceeding strong.

The second is a Roof so formed, that if the foregoing Pitch for Plain Tiles is judged to be too lofty, then by this Method of having a Gutter in the Middle, one third Part of the Height of the Roof is taken off, as is plain by the Divisions on the Plate; and these are called M Roofs, from their likeness of an M.

The third Form is a Roof that spans or extends beyond the Walls: And of this Sort are the Roofs of *Covent-Garden*, and *Horshly-Down* Churches, which are very proper, by reason they give a
Covering,

Fig. 1

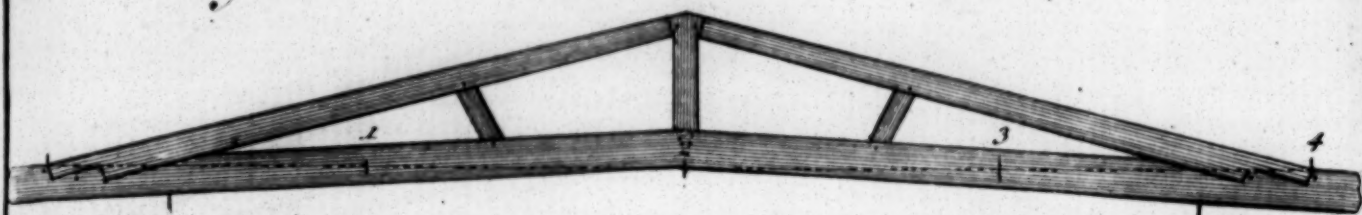


Fig. 2

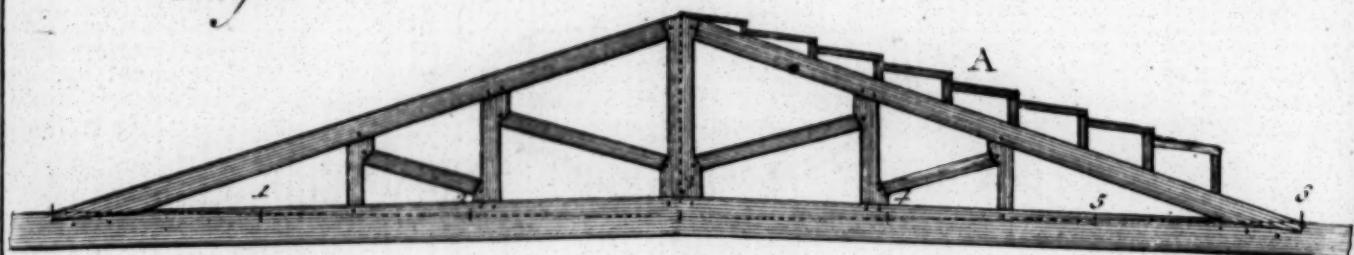
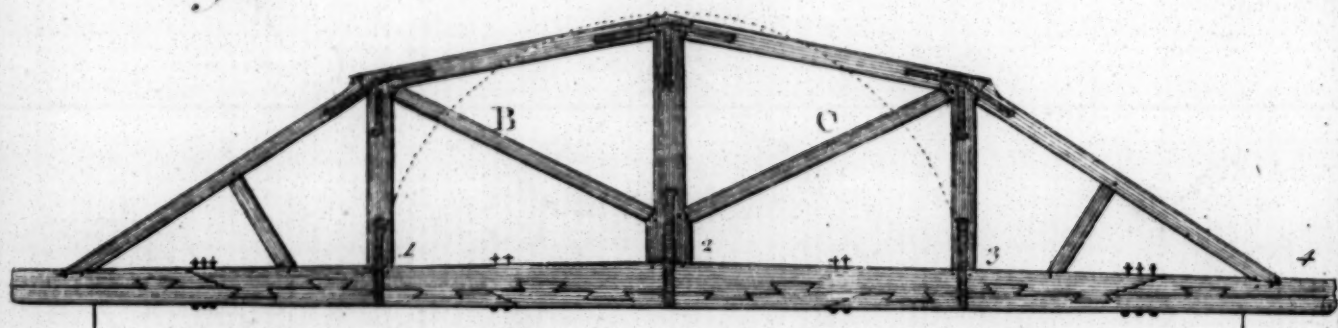
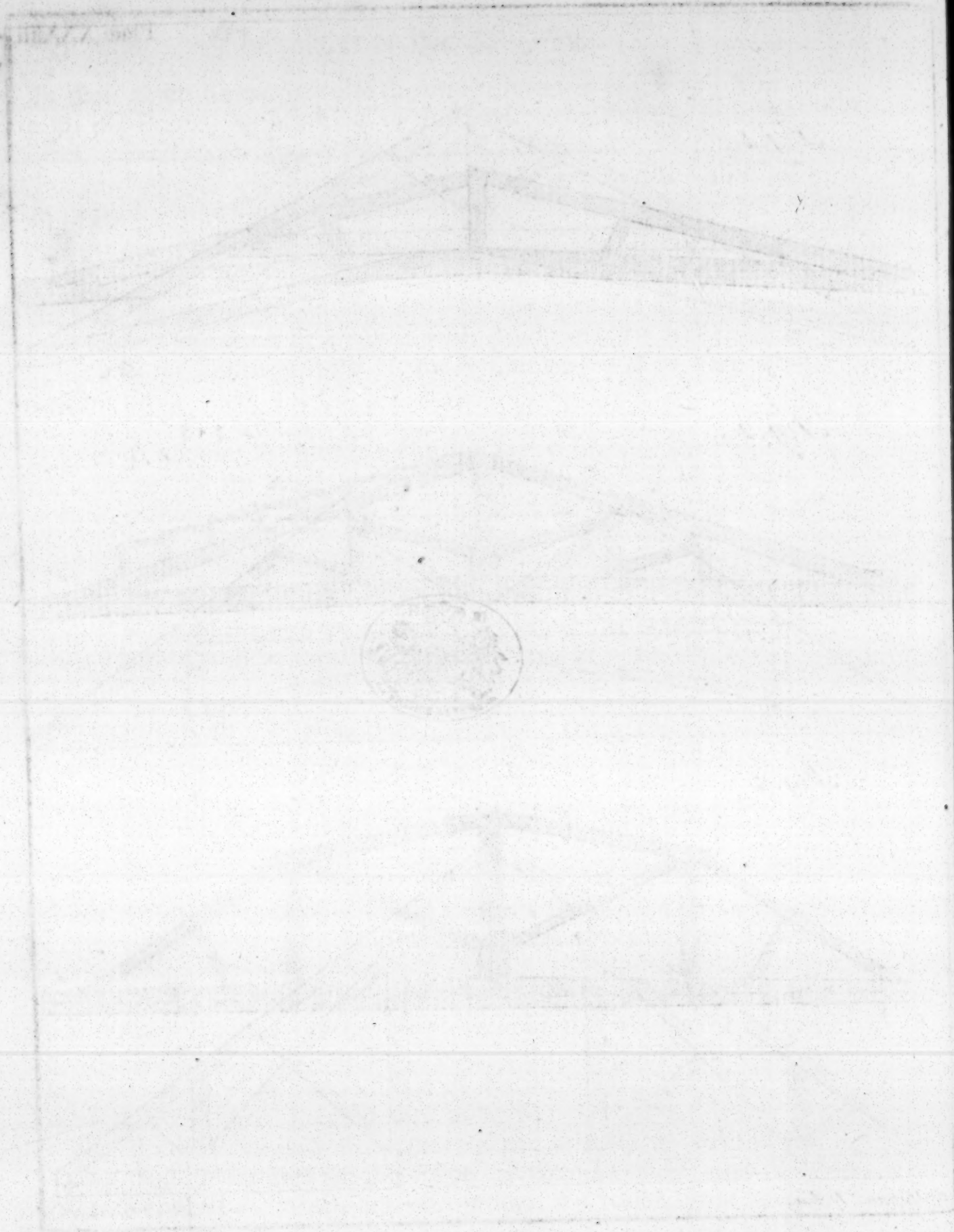
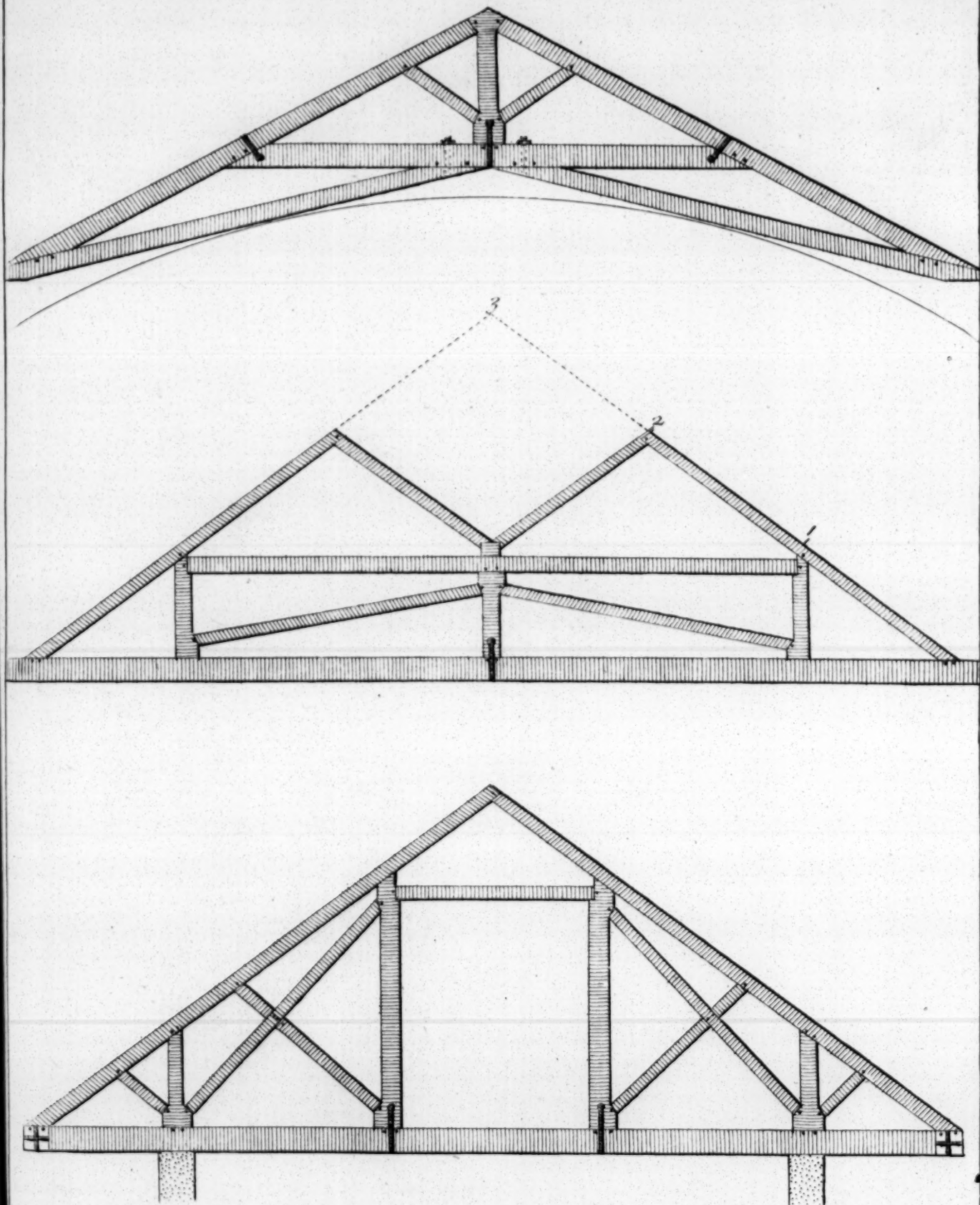
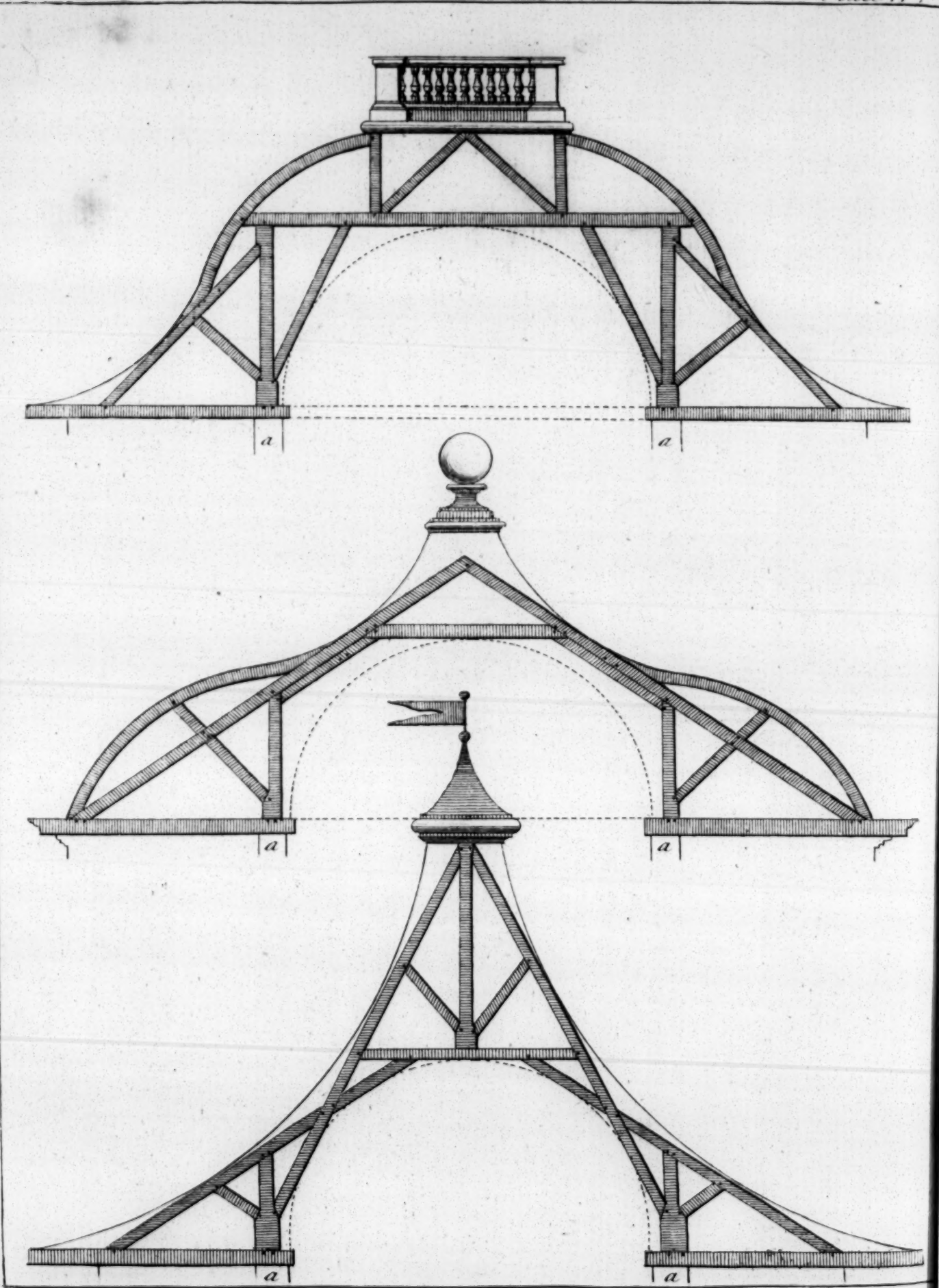


Fig. 3









Covering, or Shelter to the People under the Eaves, as well as to the Building itself.

N. B. These Trusses are only for the principal Rafters, which are commonly placed about 9 or 10 Feet asunder.

P L A T E P.

As Variety is always most pleasing, here is shewn 3 different Forms of curvilineal Roofs, which are much in use for Summer-Houses, Temples, &c. The first of them hath a Ballustrade round a flat Part at the Top.

The second is terminated by a Ball, and is a reversed Ogee to the other.

The third is a Concave Roof, which may be properly used for a Square, Circular, or Octangular Plan, or indeed any kind of regular Polygon.

In these Roofs you may observe that the Beam is cut off, as in the last Plate; hereby making a Semicircular Ceiling in each; and the Ends of the Beams are to be supported by Columns, as at *a, a, a, a*.

C H A P. V.

*Of the HIP-ROOF.*P L A T E XXXIV. *Fig. 1.*

INSTRUCTIONS to find the Length and Back of the Hip-Rafter, so as it may answer the Side and the End of the perpendicular Line of the Gable-End, the two Skirts, the Side of the Roof, whether in Plano, or lying in Ledgment, with the Hip and Gable-End; the Diagonal and perpendicular Lines being laid down proportional to any Breadth or Length.

E X A M P L E. Fig. 1.

Let ABCD be the Sides and Ends of the said Roof, one End to be hipped, and the other a Gable-End; draw the Lines ABCD the Breadth and Length of that Roof; then draw the Gable-End AHB, whose Sides AH, and BH, are each equal in Length to $\frac{1}{4}$ of the Width of the House, or true Pitch; then draw the perpendicular Line OH, the Height of the Gable-End, which Line is of general Use to level the Ridge of all Roofs; and if the other End be hipped, as in the Design CDE, then it serves to find the Length and Back of the Hip, so that it may answer both Sides and Ends of the Roof, always observing that the Middle of the Breadth of the House is as OV; then draw the Line SWXF through the Center Q, which will make right Angles to the Line OV, both in Square and Bevel Houses; and the Distance WS and XF are each equal to the Length of the Rafters AH or BH; then extend the Line AB on both Sides to T and I, and to the same Length also, so will IF, and ST, make the Length of the Ridge QO, and SC and DF, the two Skirts.

To find the Length of the Hip.

Draw the Diagonal Lines CQ and QD, over which the Hip is to hang when in its due place; then take the perpendicular Line OH, and place it from the point Q to the point R R, the one perpendicular to the Diagonal, or Base Line, CQ, and the other to QD, so is QR and QR the Pitch of the Hip equal to the Gable-End OH, and when erected, will hang perpendicular to the point Q; then take the Lines CR, and RD, placing them from C to E, and from D to E, and it gives the Length of the Hip CED; and when laid to their Pitch will all meet perpendicular to the Point I.

To find the Back of the Hip, so that it may answer both Sides and Ends of the Roof, whether Square or Bevel.

Lay a Ruler from the Point W, to the point V, and from the point V to X, and mark where it cuts the Diagonal Lines CQ, and QD, at *zz*; then set one Foot of the Compasses in the Point *z*, extend the other Foot to the nearest Distance on the Hip Lines CR, and DR, and with that Distance mark the Points GG, upon the same Diagonal Lines; then draw the pricked Lines WGV, and VGX, which makes the Back of the Hip for the two Corners of that Roof.

CHAP. VI.

*Of the Roof Bevel at one End, and Square at the other ;
the Gable-End Square, the Bevel-End Hipt.*

PLATE XXXIV. Fig. 2.

SUPPOSE the Breadth of the House be 20 Feet, the Length more on one Side than the other, as in the Design CNEP; then draw the Gable-End CAE, whose Sides from C to A, and from A to E, is $\frac{1}{4}$ of the Breadth of the House, or is the Length of the principal Rafters; then draw the perpendicular AD, the Height of the Roof from the Floor; and if Knee'd, then from the Top of the Knee.

The Sides of the Roof BGFQ, to be drawn as is described in the foregoing Design.

Divide the Breadth of the House into two equal Parts, and draw the Line DLR; then take the Distance LV, which is the half Breadth of the House, and make it parallel to NR P, as HLK, and L will be the Point whose Perpendiculars IL will meet the principal Rafters and Hips.

To find the Length of each Hip distinct one from the other; and first of the longest Hips.

Draw the Diagonal Line PL, and take the Height of the Gable-End DA, and place it perpendicular to PL at I, so have you the Height of the Roof perpendicular from PL equal to DA the Gable-End; and the Line PI will be the Length of the Hip-Rafter, which will be equal to PQ, the Skirt for that Side of the Hip, and SP the Side of that Hipt End.

To find the Back of the longest Hip I P.

Lay the Ruler from the Point K to R, and mark where it cuts the Diagonal Line at M; then set one Foot of the Compasses in the point M, and extend the other Foot till it touches the Line I P at the nearest Distance; then make it touch the Diagonal Line at O; then draw the Lines K O, O R, which is the Back of the Hip for that Corner of the Roof.

To find the shortest Hip I N.

Is all the same as to find the Length of the longest Hip; and the Backing of the shortest Hip, is also found by the same Method, as is already taught, and needs no other Explanation.

N. B. This Rule serves for all Bevel Roofs let the Pitch or Slope be what it will.

C H A P. VII.

Of a Roof Bevel at both Ends, and broader at one End than the other.

P L A T E XXXV.

SUPPOSE ABCD the Length and Breadth of the House, and LMN the Length of the Rafters, or Pitch between the widest and narrowest End, about the Middle of the House, to stand over the pricked Line S O. K, K, are the Points of the two Hip Ends, which, when brought to their due Place, will be perpendicular to P and P, and will meet the Sides F H, G I over the same Points P and P. The Points XXX are the Perpendiculars
S and

and Length of the Hips from ABCD; the Points W W W W shew the Back of the Hips, or Hip-Mould due to each Corner; and V V V V are the Points to find out the Points W W W W for each Back. RT, ZZ are the Lines representing half the Breadth of the House parallel to each End; and Y Y represents the Middle of the House.

Notwithstanding the Bevel-Ends, you may place the Beams for your principal Rafters to stand on square, or so near a Square as may be, or between both, as from the Ends of the prick'd Lines FG, HI, bringing the Out-side of them strait under P, which will be more handsome for the House within side, although it bevels outward.

C H A P. VIII.

Of Architectonical Axioms and Analogies.

I. *Of D O O R S.*

THAT the Height of all Doors be double their Breadth. That Doors in general be proportionable to the Magnitude of the Rooms.

That the Breadth of inner Doors be never less than two Feet and a half, nor more than six Feet. That the Doors of the second and third Stories be placed exactly over the Doors of the first. That an Arch of Brick or Stone be turned over every Door to discharge the Weight that presses upon them, which oftentimes ruins the Structure.

II. *Of W I N D O W S.*

That the Bigness and Number of Windows be proportional to the Rooms they are to enlighten, and their Height double their Breadth, with the Addition of $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$ Part, as shall be found necessary. That the Height of the Windows in the second Story be $\frac{1}{1.2}$ of the first, and the Height of the Attic, or third Story $\frac{3}{4}$ of the

Fig. 1.

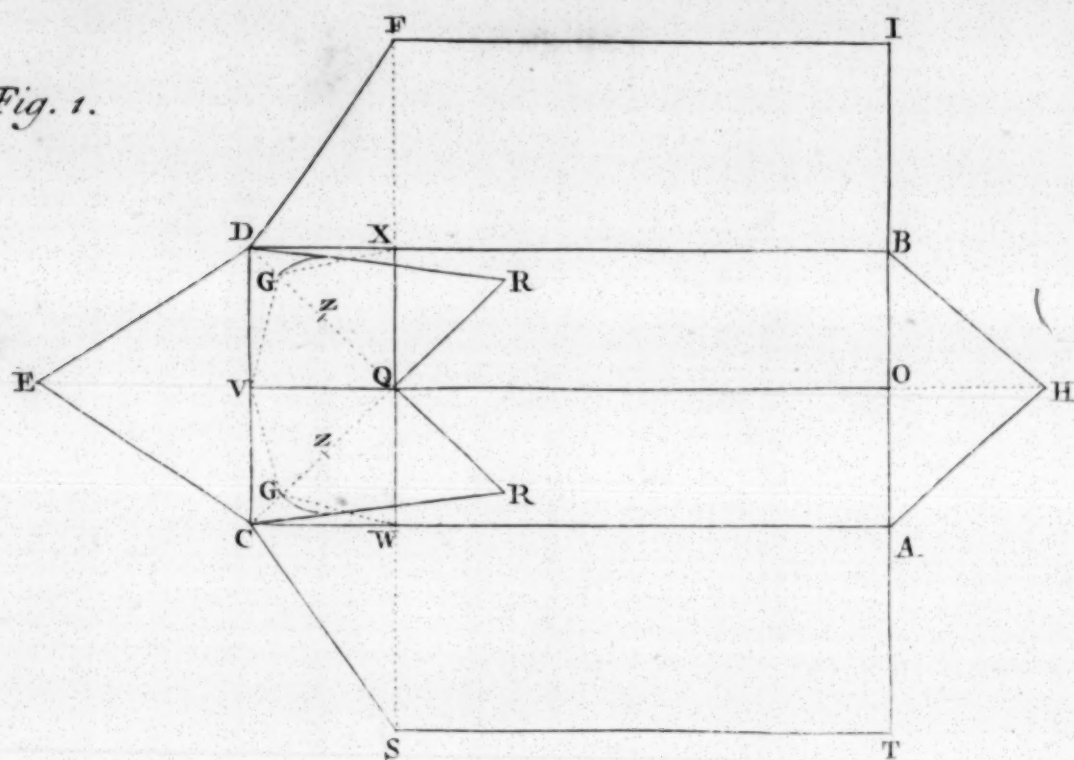
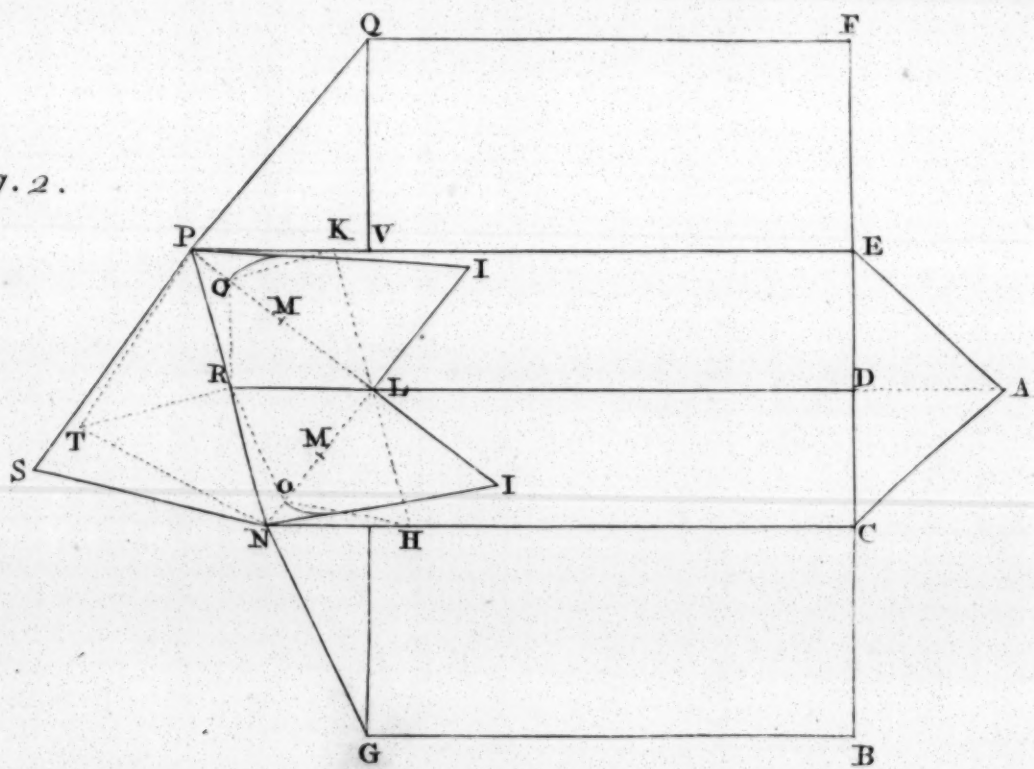


Fig. 2.



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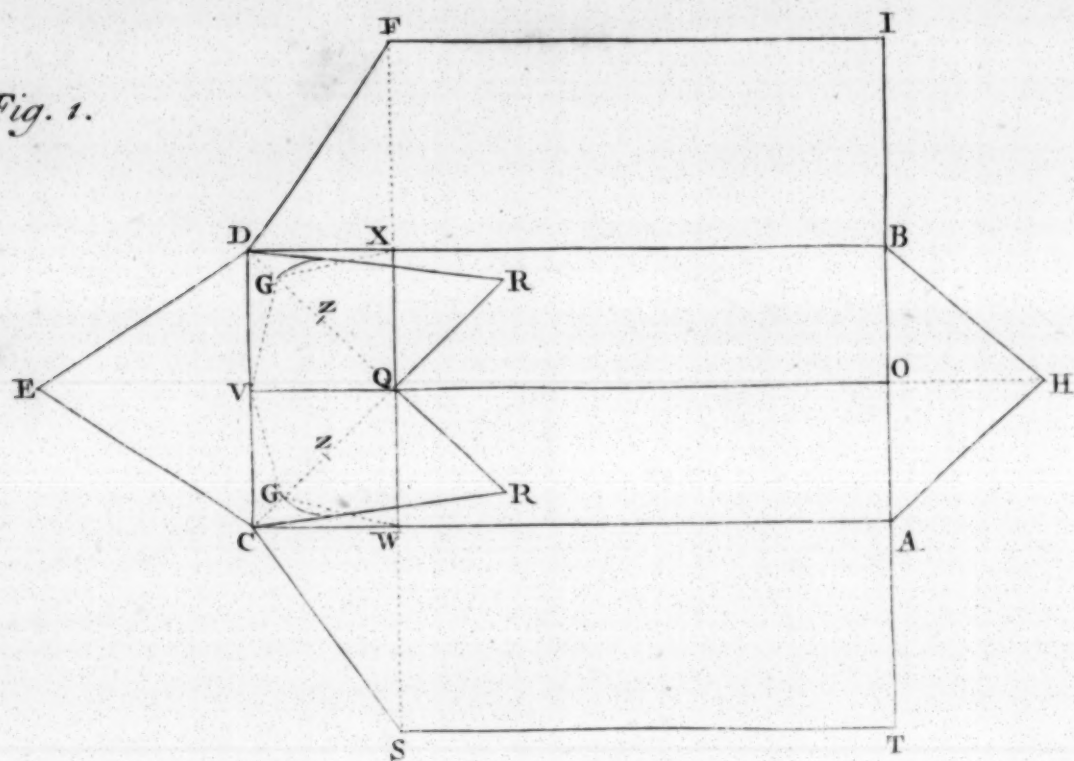
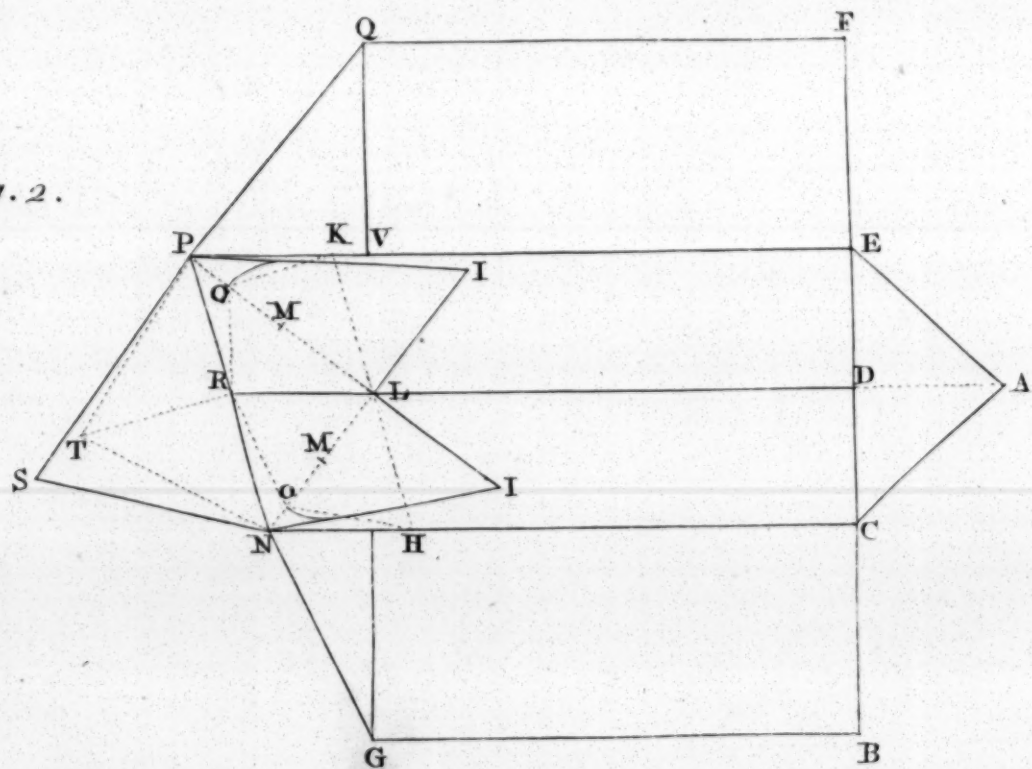
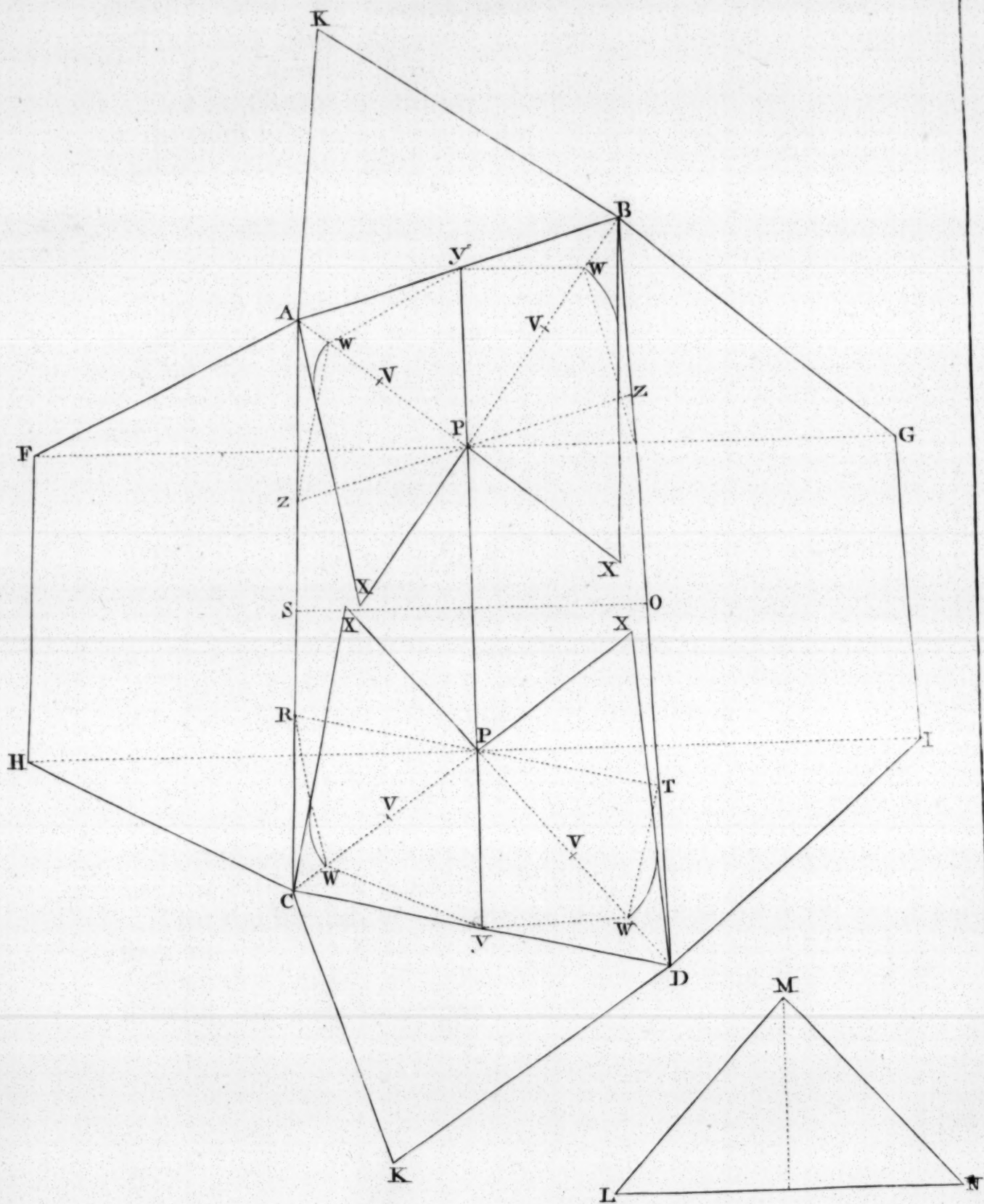


Fig. 2.



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the second Story. That Windows be not placed too near the Angles of any Building, for thereby the Structure will be weaken'd.

That over every Window be turned an Arch to discharge the Weight that lies over them.

That no Girders be laid over any Door, or Window, but always on the most substantial Part of the Brick or Stone Piers, &c. that Solid may rest upon Solid.

III. *Of G A T E S.*

That the Breadth of principal Gates of Entrance be never less than seven Feet and a half, nor more than twelve Feet.

That the Height of principal Gates, or Entrance, be never less than once and a half their Breadth, nor more than twice, which is the best Proportion.

IV. *Of H A L L S.*

That the Length of Halls, be not less than twice their Breadth, nor more than three times.

That the Height of Halls, whose Cielings are flat, be not less than $\frac{2}{3}$ of their Breadth, or more than $\frac{3}{4}$ of the Length.

That the Height of Halls, whose Cielings are Arched or Coved, be not less than $\frac{5}{6}$ nor more than $\frac{1}{1\frac{1}{2}}$ of their Breadth.

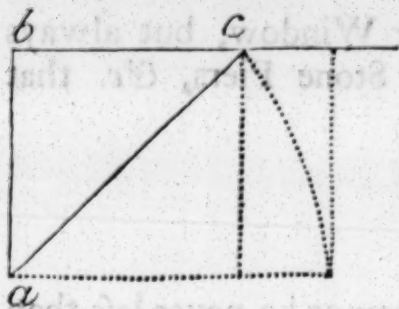
V. *Of G A L L E R I E S.*

That their Sight be toward the North, on account that the North Light is the best for Paintings, Pictures, &c.

That the Breadth of Galleries be not less than 16 Feet, nor more than 24.

That the Length of Galleries be not less than five times their Breadth, nor more than eight at most.

That the Height of Galleries be equal to their Breadth, if with flat Cielings; but if Arched, or Coved, $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$ of the Breadth may be superadded.



VI. Of ANTICHAMBERS.

That the Length of all Antichambers be equal to the Hypotenuse of a Right-angled plain Triangle, as ac , whose Legs ab and bc are each equal to the Breadth of the Antichamber.

That the Breadth of all Antichambers be proportionable to the whole Structure. That the Height of Antichambers be not less than $\frac{2}{3}$ of the Breadth, or more than $\frac{3}{4}$ of the Length, when the Cieling is flat, and when arched or coved, not less than $\frac{5}{6}$, nor more than $\frac{1}{1\frac{1}{2}}$ of their Breadth.

VII. Of CHAMBERS.

That all principal Chambers of Delight be placed towards the best Prospects of the Country, and, if possible, to the East.

That the Length of Chambers never exceed the Breadth and $\frac{1}{5}$ of the Breadth; therefore the Length may be the Breadth exactly, or the Breadth and $\frac{1}{8}$, $\frac{1}{7}$, $\frac{1}{6}$, or $\frac{1}{5}$.

That the Height of all Chambers of the first Story, whose Cielings are flat, be not less than $\frac{2}{3}$ of the Breadth, or more than $\frac{3}{4}$ of the Length.

That the Altitude of the Chambers of the second Floor be $\frac{1}{1\frac{1}{2}}$ of the first Story.

That the Altitude of the Chambers in the third Floor be $\frac{1}{4}$ of the second.

VIII. Of

VIII. Of F L O O R S.

That the Floor of every Story in a Building be truly level throughout, so as to pass out of one Room into another, without going up or down Stairs, as is common in many Buildings.

That the Height of the Level of the first (or ground) Floor be never less than one Foot, nor more than four Feet.

IX. Of CHIMNIES.

1. Of Hall Chimnies.

That the Proportion of Hall Chimnies be as follows, *viz.* Their Distance between the Jaumbs from six to eight Feet; their Height from four Feet and half to five Feet; their Projection from two Feet and a half to three Feet at most; the Breadth of the Jaumbs from nine to twenty Inches, or more, as occasion may require according to the Order that the Chimney is adorned with.

2. Of Chamber-Chimnies.

The Proportion of Chamber Chimnies are as follows, *viz.* Their Breadth from five to seven Feet; their Height four Feet and an half, and Projecture two Feet and an half.

3. Of Chimnies in Studies, &c.

The Proportion of Chimnies in Studies are as follows, *viz.* Their Breadth from four to five Feet at most; their Height four Feet, and Projecture two Feet and a half.

That

That the Funnels of Chamber Chimnies, or Studies, be not narrower than ten Inches or wider than fifteen, which is a good Size for Kitchen Chimnies.

X. *Of the Funnels of Chimnies.*

That the Funnels of Chimnies be carried a sufficient Height above the Ridge, that Winds may have the less Power to beat the Smoak back.

That the Funnels of Chimnies be not wide, because thereby the Wind may drive down the Smoak into the Room; or too narrow, so that it cannot have a free Passage out.

That the Funnels of Chimnies be truly perpendicular, otherwise the Smoak cannot so freely pass.

That no Timber, Joist, &c. be laid nearer the Jaumbs than one Foot. That no trimming Joist be laid nearer than six Inches to the Back of any Chimney.

That the Funnels of all Chimnies have not any Timber, as Girders, Joists, &c. laid therein, least some time or other they chance to take Fire.

XI. *Of Joists, Rafters, and Girders.*

That the greatest Distance that Joists, or Rafters, are laid from each other, do not exceed 12 Inches, and Quarters in Partitions 14 Inches asunder. That not Joist bear at a greater Length than twelve Feet, or single Rafters more than ten Feet.

That the Length of Joists laid in the Wall be not less than seven Inches, and no Girder less than nine Inches. *See General Rules on Page 80.*

XII. *Of MATERIALS, &c.*

1. That Money and Materials be always ready from the Beginning, or Laying of the Foundation, to the Turning of the Key, when the Whole is compleated.

2. That

2. That great Care be taken in the Goodness of Foundations, and that they be truly level.
3. That the Thickness of all Foundations be double to the insistent Wall.
4. That the most heavy Materials be employed in the Foundation.
5. That all Walls diminish in Thickness according to the Nature and Height of the Structure.
6. That every Wall be perpendicular.
7. That such Bricks as are not well burnt, be not used in any Building.
8. That the Depth of all Fabricks in the Ground, that have Cellars, Vaults, &c. be $\frac{1}{7}$ of the whole Height, and those that have no Cellars to be $\frac{1}{6}$ of the Height.
9. That the Kitchen be spacious and light, and as remote from the Parlour as possible, and to be under Ground; as also the Pantry, Bake-House, Still-Room, Buttery, Dairy, and Servants Offices in general.
10. That Cornices do not project too far out from the Building, whereby the Windows will be darkened.
11. That of all Kinds of Arches none is so strong as the Semi-circle.
12. That the Depth of all Rustics be never more than one Foot, nor less than nine Inches.
13. That the Thickness of Pilasters, of Doors and Windows, be not more than $\frac{1}{5}$ of their Aperture, or Breadth, nor less than $\frac{1}{6}$.
14. That the Projecture of Pilasters in general be $\frac{1}{6}$ of their Thickness.

15. That

15. That the Roofs of all Buildings be not too heavy, or too light, and that interior Walls support part of the same.

16. That convenient Cisterns be well placed, plentifully to furnish every Office with Water; and that proper Machines be made to raise the same therein.

Lastly, That convenient Drains, to carry away Soil, &c. be well contrived, and secretly placed, with Vents to discharge the noisome Vapours that usually arise from them.



T H E

Builder's Dictionary;



CONTAINING

An Explanation of the Terms made Use of in
ARCHITECTURE; also the Terms of ART used
by Workmen concerned in Building.

A B A C

A *BACUS* is a square Table, Lift, or Plinth, in the upper Part of the Chapiters of Columns, especially those of the *Corinthian* Order; *Abacus* comes from the Greek Word *Abax*.

Abrevoirs, A Term in Masonry, by which is understood the Intervals, or Spaces between the Stones in laying them, commonly called the Joints.

Acanthus, the Herb whose Leaves are represented in the Capital of the *Corinthian* Column.

Acroteria, are sharp and spiry Battlements, or Pinacles, that stand in Ranges, with Rails and Balusters, upon flat Buildings. Also Images set on the Tops of Houses, are so called by some.

A C A D A L A M

Acroteres, are Pedestals upon the Corners and Middle of a Pediment to support Statues; they may properly be called Pinacles. The Word in Greek signifies the Extremity of any Thing; the Tip of a Finger, a Rock, or the like.

Acute Angle, an Angle that contains less than ninety Degrees.

Adze, an Instrument used by Carpenters to chop or cut with.

Alcove, by the Spaniards called *Alcobar*, is a Recess within a Chamber for the setting of a Bed out of the way. Also a *Seat* at the Termination of a *Walk* in a Garden.

Amphitheatre, is an Edifice, or Building of an oval, or circular Form, with Rows of Seats one above another, where Spectators might sit

T

to

A N

to behold Stage-Plays, and other public Diversions.

Anabathrum, a Place that is ascended to by Steps.

Anchor, in Architecture, is a certain sort of Carving, somewhat resembling an Anchor, or Arrow-head; 'tis commonly part of the Enrichments of the Boultns of Capitals of the *Tuscan*, *Doric*, and *Ionie*, Orders; and also of the Boultns of Bed-mouldings, of the *Doric*, *Ionie*, and *Corinthian* Cornices. These Anchors and Eggs being alternately carved throughout the whole Building.

Ancones, the Consoles (a sort of Brackets and shouldering Pieces) are called Ancones by *Vitruvius*. See *Console*.

Annulet, the same as Cincture from the Latin *Annulus*, a Ring; in Architecture, 'tis used to signify a narrow flat Moulding which is common to divers Places of the Columns, as in the Bases, and Capitals, &c. 'Tis the same Member as the *Sieur Mauslere*, from *Vitruvius*, calls a Fillet, and *Palladio*, a Listella, or Cincture; and *Brown*, from *Scamozzi*, a Supercilium, Lift, Tinea, Eye-brow, Square and Rabbit.

Antæ, Pillars adjoining to the Wall. See *Parastatæ*.

Antichamber, from the Italian *Anti camera*, an outer, or fore Chamber; a Room in Noblemens Houses, where Strangers stay till such time as the Party to be spoken with is at Leisure.

Antic, a Term in Sculpture, and Painting, being a confused composition of Figures of different Natures,

A N A P A Q A R

and Sexes, &c. as of Men, Beasts, Birds, Flowers, Fishes, &c. it is also called Grotesque.

Anticum, from the Latin, a Porch before a Door, the fore Door, a Hatch.

Antipagments, the Ornaments, or garnishing in carved Work, set on the Architrave, [Jaumbs, Posts, or Puncheons of Doors] whether of Wood, or Stone.

Antique, *Lat.* By Antique Buildings we mean the Buildings of the *Greeks* and *Romans*.

Angle, [in *Geometry*] is the Inclination, or leaning of two Lines, one towards the other; the one touching the other, yet not being directly joined together. See *Plate 1*, *Fig. 4* and *5*.

Apertions, or *Apertures*, from the *Lat.* signifying Opening; but in Architecture 'tis used to signify Doors, Windows, Stair-Cases, Chimnies, or other Conduits; and in short all Inlets, or Outlets, for Men, Light, Smoak, &c.

Aqueduct, from the *Lat.* *Aqueductus*, a Conveyance made for the carrying of Water from one Place to another.

Arcade, a Range of Arches with open Places to walk, as that of *Covent-Garden*, the *Royal-Exchange*, &c.

Archæ, it comes from the *Lat.* *Arcus*, a Bow. In Architecture 'tis used to signify an inward Support to the Superstructure, and it is either Circular, Elliptical, or Strait.

Architeſtonic, belonging to the chief Overseer of Buildings, also to an

Architeſt,

A R

Architect, a Master-workman in a Building; and is he that supervises and gives the *Draughts* or Designs of a *Fabrick*, and Directions for a *Model* thereof, if required, and also whose Business it is to consider of the manner and method of the Building, and also the Charge, and Expence of the whole.

Architecture, the Science which teacheth the Art of Building, being a Skill obtained by the Art of Designing, and the Precepts of Geometry, by which it gives the Rules for designing and raising all sorts of Structures, according to Geometry and Proportion: Containing under it all those Arts that conduce any thing to the framing Houses, Temples, &c. The Scheme or Projection of a Building is easily laid down in three several Draughts, or Designs. The first is a Plan, which shews the Extent, Division, and Distribution of the Ground into Apartments, and other Conveniencies. The second shews the Stories, their Heights and outward Appearances of the whole Building; and this we call the Design, or Elevation. The third, called the Section, shews the Inside; and from these three Designs, the Undertaker forms a Computation of the Expence of the Building, and the time required to go through with it. So much for what is called Civil Architecture. Military Architecture, usually called Fortification, has for its Object the making a Place of difficult and dangerous Approach to an Enemy.

Archives, a Place where ancient Records, Charters, and Evidences of a Nation are kept: Also the Records themselves,

A R

Architrave, the Word comes from the Greek *Archos*, chief; and the Latin *Trabs*, a Beam. 'Tis also sometimes called Epistyle, from the Greek *Epi*, upon, and *Stylos*, a Column. 'Tis used in Architecture to signify the Moulding, or Ornament, next above the Capital of a Column; it being always the next Member below a Frieze: The Word is also sometimes used to signify the chief or principal Beam of a Building, as what we call Portico's, Piazza's, or Cloysters. By Cloysters we understand a long kind of Galleries, or Walking-places, whose Roof is born, or supported, by Columns, or Pillars, at least on one side; and have not Arches rising from them to bear the Superincumbent Part of the Fabrick, but have a Beam resting, or lying upon the Tops of the Columns, by which the superior Part of the Edifice is supported, upon which Account I suppose it to be called chief or principal Beam. In Chimnies, the Architrave is the Mantle over the Jaumbs of Doors, 'tis called *Hypethyron*.

There are also Architrave-Doors and Windows; those are called Architrave-Doors, which have an Architrave on the Jaumbs, or Punchcons, and over the Doors upon the Cap-piece, if strait. Also upon the Jaumbs or Cap-pieces of Windows. The form of these Architraves about Doors are not always the same; for sometimes they are according to one of the five Orders of Architecture; but 'tis sometimes done according to the Workman's Fancy.

Aræstyle, this Word *Vitruvius* uses to signify the greatest Interval, or

A S A T B A

Distance, which can be made between the Columns; consisting of four Diameters. It comes from the Greek *Arios*, thin set; or, *Rare* and *Stylos*, a Column.

Asblar; by *Asblar* is meant common or free Stones, as they come out of the Quarry of different lengths and thickneses.

Aslaring, quartering in Garrets about $2\frac{1}{2}$, or 3 Feet high, perpendicular to the Floor, up to the under side of the Rafters.

Astragal, a little round Moulding, which incompasses the top of the Fust, or Shaft, of a Column. It comes from the Greek *Astragalos*, the Bone of the Heel. The Shaft always terminates at top with an *Astragal*, and at bottom with a *Fillet*, which in this place is called *Ozia*.

Attic, in Building, a little Order, placed upon another much greater; for instead of Pillars, this Order has nothing but Pilasters, with a Cornice architraved for an Entablement; as that, for instance, in the Castle of *Versailles*, above the Ionic, on the side of the Garden.

Attic, or *Athenian*, Base, the same as the *Doric* Base, which See.

B

BACK, *Baquette*, a kind of Astragal, or Hip moulding, is a Term in Carpentry, by which they signify the outward Angle, or the Hips, or corners of a Roof; which in square Frames, where the Roof is $\frac{3}{4}$ Pitch, contains an Angle of 116 Degrees 12 M.

It is also a Term used by Ironmongers, to signify a certain sort of Nail.

B A

Balcony, is a kind of open Gallery, (without the Walls of a House or Building) for People to stand in, and behold any Action, as Pageants, and the like, in Cities, or to take the Air, &c.

Baldaqin, is a *French* Word, which properly signifies a Canopy carried over the Holy Sacrament, among the Roman Catholics. 'Tis used by Architects to signify a Piece of Architecture, built in fashion of a Canopy, or Crown, supported by several Pillars to serve for a covering to an Altar; some also use it to signify a Shell over the Front-Door of a House.

Balks, pieces of Firr-Timber coming from beyond the Seas by Floats.

Ballon, *French*, a Term in Architecture, signifying the round Globe of the Top of a Pier, or Pillar.

Ballustrade, a Term in Architecture, used to signify a Row of turned Pillars, called Balusters, made of Marble, Iron, Wood or Stone, so high as for a Man to rest his Elbows, fixed upon a Terrace, or upon the top of a Building, or to make any Separation.

Band, in Architecture, is any flat Member that is broad, and not very deep; the Word *Face* is sometimes used to signify the same thing.

Bandelets, it is derived from the *French* *Bandelette*, a little Fillet, or Band; 'tis used by Architects, to signify the three Parts that compose an Architrave.

Bargecourse, is a Term used by Workmen, by which they signify a part of the Tiling, which projects over without the principal Rafters,

in.

B A B E

in all Buildings where there is a Gable-End.

Base, from the Greek, *Basis*, a Rest or Support to any Body, and which bears up another; but is particularly applied to the bottoms of Columns and Pedestals.

Basilic, this among the Ancients, was a large Hall, with Portico's, Isles, Tribunes and Tribunals, when the Kings themselves administer Justice. *Basiliscos*, in Greek, signifies *Royal*.

Batter, a Term, used by Workmen, to signify that a Wall, a piece of Timber, or the like, doth not stand upright, but leans from youward, when you stand before it; but when it leans toward you, they say it over-hangs, or hangs over.

Bay, the Word is used to signify (as it were) the Magnitude of a Barn; for if a Barn consists of a Floor and two Beams, where they lay Corn, they say a Barn of three Bays.

Bay-Window, is such a one as is composed of an Arch of a Circle; and so by consequence will stand without the stress of the Building.

Bead, a Moulding so called, which is commonly made upon the Edge of a Piece, and known by all Workmen.

Beam, in Building, is a piece of Timber which always lies cross the Building, into which the Feet of the principal Rafters are framed.

Beam-Filling, is Bricklayers-work, 'tis only filling up the vacant Spaces betwixt the Raising-Plate and the Joists.

Bedding-Moulding, is a Term used commonly amongst Workmen, it consists of these four Members, viz.

B E B I B O B R

1. (below) an O G. 2. A Lift. 3. A large Boulton; and 4th and lastly, under the Coronet another Lift; this is what they frequently call a Bed-Moulding.

Bevel, any thing that is not square is called a Bevel Angle; whether it be more Obtuse, or more Acute than a Right Angle.

Binding-Joists, are those Joists, in any Floor, into which the Trimmers of Stair-Cases (or Well-Hole for the Stairs) and Chimney-ways are framed; these Joists ought to be larger than common Joists.

Boast, among Workmen, is the taking off the superfluous part in Carving, or Mouldings, &c.

Borders, among Workmen, are those pieces round the Slabbs of Chimneys in the Floor. Also all plain Spaces round *Carving*, *Painting*, &c. is called the *Border*.

Bond, a Term used among Workmen; for when they say, *Make good Bond*, they mean, fasten the two or more pieces of Timber well together, either with Tenanting and Mortising, or Dove-tailing, &c.

Botbam, is an Ironmonger's Term, by which they use to signify a certain sort of Nails.

Boulder Walls, that is, Walls made of round Flints, or Pebbles, which are found where the Sea hath a breach cast up, and also at some other places where there are Plenty of Flints.

Boulton, in Architecture, is a Convex-Moulding, that consists of an exact $\frac{1}{4}$ of a Circle; being the Member next below the Plinth in the *Tuscan* and *Doric* Capitals.

Brace, in a Building, is a piece of Timber, which is framed in with Bevel-Joints. Its use is to keep the Building

B R B U C A

Building from swerving, either this or that way; they are sometimes called Struts, *viz.* When they are framed in the King-piece, and principal Rafters.

Bracketts, or *Braggotts*, are the seeming Supports of the Ends of Steps to Stairs, also to Shelves, &c.

Brest, a Term in Architecture, made use of by some, to signify the same Member in a Column, that others call a *Thor*.

Brest-Summers, in a Building, are Timbers into which the Girders are framed in the First Floor; but when in the Ground Floor (they call it a Sill) and in a Garret Floor then it is called a Beam.

Butment, is a Term used by Masons and Bricklayers, by which they mean the Supporters, or Stays, on or against which the Feet of Arches rest.

Button-Nails, are a sort of Nails with round Heads, and but short Shanks, tinned and lackered.

Buttress, A Term in Architecture used to signify a Strength, or Support, either of Brick, or Stone, intended to keep the Work the firmer in its Position, as against Brick, or Stone-Walls, that are high, or have any considerable Weight against them on the other side, as a Bank of Earth, or the like; they are also used against the Angles of Steeples, Churches, and other Buildings of Stone, &c.

C A

CABINETS, strictly taken, is the most retired Place in a House.

C A

But a Cabinet in Palaces, and great Houses, consists of an Out-Chamber, and a Cabinet with a Gallery on the side.

Caliducts, that is, Conveyors of Heat. The Ancients used to warm their Rooms with certain (secret) Pipes (called *Caliducts*) that were conveyed in the Walls, transporting Heat to sundry Parts of the House, from one Common-Furnace.

Camber-Beams, a piece of Timber cut Arching (or with an obtuse Angle) in the middle. Camber-Beams are commonly used in Platforms, as Church-leads, &c.

Cames, the small slender Rods of Cast-lead, of which the Glaziers make their turned Lead.

Camerated, Vaulted or Arched.

Cantalivers, the same as Modillions, only those are plain, but these are carved. They are both a kind of Cartouzes, set (at equal distance) under the Corona of the Cornice of a Building.

Cantaliver-Cornice, is such a Cornice as have Cantalivers under it.

Capital, is the upper Part of a Column; such as have no Ornaments, are the *Tuscan* or *Doric*, we call Capitals with Mouldings; and the rest which have Leaves, and other Ornaments, Capitals, with Sculptures. The Word is derived from the Latin, *Caput*, the Head or Top of any thing.

Carcase, the Timber-work (as it were the Skeleton) of a House, before it is Lathed and Plaistered.

Cariatides, from the Greek, *Kariatydes*, a People of *Caria*: By these in Architecture, are meant certain Figures of Captive Women, dressed after the manner of that Nation, and serving

C A

serving instead of Columns to support the Entablements.

Car-Toufes-Touzes, in Architecture, are much the same as Modillions; only these are set under the Cornice in Wainscoting, and those at the Eaves of a House.

Cartouche, *Perrault* says, it is an Ornament of carved Work, of no determined Form, whose Use is to receive a Motto, or Inscription, the Word being borrowed from the Italian *Cartoccio*.

Cartridges, in Architecture, are the same as *Cartoozes*.

Cafe of Glass, a Cafe of Crown-Glass contains twenty-four Tables, each Table being circular, or nearly so, and about three Feet six Inches, or three Feet eight Inches Diameter.

Casement, in Architecture, is a Hollow Moulding. Some Architects make it $\frac{1}{6}$ of a Circle, others $\frac{1}{4}$. Also an Iron Frame to Windows is so called.

Cast, (among Workmen) a piece of Timber, or a Board, or the like, is said to cast, or to be cast, when (by its own Drought or Moisture, or by the Drought or Moisture of the Air, or other Accident) it alters its Flatness and Straitness, and becomes crooked.

Catadrome, a kind of Engine, like a Crane, which Builders use in lifting up, and letting down any great Weights.

Catheta, a perpendicular, or plumb Line, falling from the Extremity of the under-side of the Cimatium (of the *Ionic* Capital) through the Centre of the Volute.

Cavetto, a round concave Moulding, which has a quite contrary effect to the quarter round; the

C A C E C H

Workmen call it *Mouth* when in its natural situation, and *Throat* when turned upside down.

Cavazion, a Term of Architecture, signifying the under-digging, or hollowing, of the Earth, for the Foundation of a Building. *Palladio* says, it ought to be the sixth Part of the Height of the whole Building.

Caulicoli, the carved Scrolls (under the Abacus) in the *Corinthian* Capital.

Ceiling, in Architecture, is the Lathing and Plaistering at the Top of a Room, upon the under side of the Joists of the next Room.

Cement, in Architecture, is a strong, sticking, cleaving, or binding Mortar, of which there are two Sorts, *viz.* cold Cement or hot Cement.

Chambers, in a House or Building are the Rooms between the Ground Story and Garrets, so that there are in some Buildings two or more Stories of Chambers.

Channel, (in the *Ionic* Capital) is that Part which is under the Abacus, and lies open upon the Echinus, or Eggs, which has its Centers or Turnings on every side, to make the Volutes. Also the ornamental Part of the *Doric* Triglyphs, and the paving in the middle of a Street, &c. are so called.

Chapiter, in Architecture, signifies the Top, or Head of a Pillar.

Chimney-Jaumbs, the Sides of a Chimney, commonly coming out perpendicularly (tho' sometimes circularly) from the Back; on the Extremities of which the Mantle-Tree resteth.

Chimney-Pieces, certain Mouldings of Wood, or Stone, standing on the fore-

C H C I C L

fore-side of the Jaumbs, and coming over the Mantle-Tree.

Chord, is a Line in a Circle connecting the two ends of any Arch.

Cima-Recta, or *Cymaise*, from the Greek *Kymation*, a Wave, called by English Workmen Ogee, which is of two Kinds, *viz.* Cima Recta, and Cima-Reverse, or the back Ogee, whose Beauty consists in having its Height and Projecture equal to each other.

Cincture, is a List, or Fillet, at the Top or bottom of a Column; that at the Top is sometimes called *Colier*, and sometimes *Annulus*.

Cilery, a Term in Architecture, signifying the Drapery, or Leafage that is wrought upon the Heads of Pillars.

Cisterns, are Vessels made to serve as Receptacles for Rain or other Water for the necessary Uses of a Family.

Circle, is a plain Figure, comprehended under one only Line, called its

Circumference, whence all the Lines drawn to its Center are equal to one another.

Circumferentor, the Name of an Instrument for surveying Land.

Clamp, a Clamp is a Kiln, built above Ground, for the Burning of Bricks. Also Pieces on the Ends of Shutters, Tables, &c. are so called.

Clinkers, those Bricks are so called by some, which by the Violence of the Fire are run, and are glazed over.

Cloister, a close and separate Habitation, where Friars, Nuns, and Monks, live retired from the World: Also a long Place covered with a Floor, or Platform, supported by Pillars.

C O

Coins. See *Quoins*.

Collar-Beam, a Beam framed cross betwixt two principal Rafters.

Colossus, this is applied to any Figure that is far greater than the Life, also a Building is called a Colossus, when of extraordinary Bigness, as the ancient Amphitheaters, the Pyramids of Egypt, &c.

Column, is a round Pillar, composed of a Base, a Fust, or Shaft, and a Capital, and serves to support the Entablement.

Compartition, by this Term Architects understand a graceful Distribution of the whole Ground-Plot of a Building, into Rooms of Office, and of Reception, or Entertainment.

Compartment, in Architecture, is a particular Square (for an Inscription, or some other Device) marked out in some ornamental Part of a Building.

Concamerate, to make an Arched-Roof, as in Vaults, &c. to arch over.

Concave, hollow, and Concavity is the Hollowness of any thing.

Concentrick, Figures that have the same common Center.

Conclave, in Architecture, is a Closet, or Inner-Chamber.

Conduits, Sewers, or Gutters, to convey away the Suillage of a House.

Cone, a Latin Word, a Geometrical Figure, of a pyramidical Form like a Sugar-Loaf.

Conges, in Architecture, are the Rings, or Ferrils heretofore used in the Extremities of Wooden-Pillars, to keep them from splitting, afterwards imitated in Stone-work.

Console, to close up in any Ornament cut upon the Key of an Arch, which has a Projecture, or Jetting, and on occasion, serves to support

C O

little Cornices, Figures, Busts, and Vases. 'Tis a French Word.

Contour, the out-line of any Member in Architecture; as that of a Base, or Cornice, or the like; a French Word.

Contignation, a Story in Building. In Latin, *Contignatio*, signifies the laying of Rafters together.

Contramure, in Architecture, is an Out-Wall, built about the Wall of a City.

Copeing of Walls, is the Top, or Cover of it, made sloping to carry off the Weather.

Corbeilles, a French Word, signifying a Basket, is a Piece of carved Work, in the Form of a Basket full of Flowers, or Fruits, serving in Architecture to finish some Ornament.

Corbel-Bet-Bil, a shouldering piece in Timber-work, jutting out like a Bragget.

Corbel, Holes left in the Walls of ancient Churches, &c. for Images to stand in.

Cornice, comes from the French *Corniche*, and makes the third and uppermost Member of the Entablement, which is different in the several Orders. The Word Cornice, however, is applied to every prominent, or jetting, Member that crowns any Body; and thus we say, the Cornice of a Pedestal, and the like. Cornices are also placed on the Top of Wainscot, and under the Eaves of Houses, &c.

Corona, *Coronice*, or *Crowning*, these Words are indifferently applied to any thing that finishes an Ornament in Architecture; as for instance, to a Cornice or Pediment, &c. *Block-Cornices*, are such as have a Kind of

C O C R C U C Y D A D E

plain Modillion without any Caps under the Corona.

Coving-Cornice, which has a great Casement, or Hollow in it, which is commonly lathed and plaistered upon Compass, Sprockets, or Brackets.

Coveings, or *Corner-Stones*, are those Stones on the Sides or *Faumbs* of a Chimney, they are generally of *Ryegate* or *Fire-stone*, and their Faces are hollow in Breadth, in grand Buildings they are of Marble.

Couffnet, the first Stone, whence a Vault, or Arch, commences, is so called.

The little Cornice, or Plinth, that crowns the Pier, and supports the *Couffnet*, is called *Impost*.

Crown, as *Corona*.

Crown-Post, is that Post which (in some Buildings) stands upright in the Middle, between two principal Rafters, from which there goes Struts, or Braces, to the Middle of each Rafter. It is also called a *King-piece*, or *Joggle-piece*.

Cubicle, a Bed-Chamber.

Culinary, of, or belonging to the Kitchen.

Culvertail, as *Dove-tail*.

Cupola, in Architecture, is a small Room (either circular, or polygonal) standing on the very Top of a Building, some call it a *Lanthorn*.

Cy-Mace-Macium, as *Cimatium*.

D A

DADO, or *Die*, the plain Part of the Pedestal.

Decor, or more properly *Decorum*; this Word is perfect Latin, and signifies the keeping of a due Respect between the Inhabitant and Habitation.

U

Denticles

D E D I D O

Denticles, Ornaments in a Cornice, cut after the manner of Teeth, from *Dens*, a Tooth. These are particularly affected in the *Corinthian* Order, and the square Member, wherein they are cut, is called the Denticle, in Latin *Denticulus*.

Diastyle, an Edifice, where the Columns are placed at the Distance of three of the Diameters from one another.

Die, this Term is applied to any square Body, as the trunk or naked part of a Pedestal, which is that part included between the Base and Cornice thereof.

Diptere, among the Ancients, a kind of Temple, or other Edifice, encompassed round with a double Row of Columns; it signifies in Greek, two winged. The Pseudo (or false) *Diptere* was the same; excepting, that instead of the double Row of Columns; this was only encompassed with a single one.

Dome, also a Cupola, a round Piece of Architecture, (resembling the Bell of a great Clock) set upon the Top of a Building, particularly upon Cathedral Churches, where it sometimes serves for the Bell-Tower, the Dome of *St. Paul's* is well known.

Dormantree, in Architecture, is a great Beam lying cross a House; otherwise called a Summer.

Dormer, in Architecture, is a Window made in the Roof of a House, it standing upon the Rafter.

Doucine. See *Cima*. It is an upright O—G.

Dove Tails, a sort of Joints, or Hinges, so called, because they resemble the Tail of a Dove, or Pigeon.

D O D R

Dove-Tailing, among Workmen, is a manner of fastening Boards (or any Timber) together, by letting one Piece into another, in the Form of a Dove's Tail.

Drag, with Workmen, a Door is said to drag, when in opening and shutting it stops upon the Ground or Floor.

Dragon-Beam, Dragon-Beams are two strong Braces, or Struts, that stand under a Bressummer, meeting in an Angle upon the Shoulder of the King-piece.

Drapery, a Term in Architecture, and Painting, it being a Work wherein Cloaths are represented: Also as *Cilerie*.

Draught, or *Design*, is the Picture of an intended Building, described on Paper, wherein is laid down (by Scale and compass) the devised Divisions and Partitions of every Room, in its due Proportion to the whole Building.

Drip, this is called *Larmier* in French, and is the Bottom of the Corona; because the Rain-water is by means thereof forced to fall Drop by Drop on the Ground, dripping like Tears.

Drips, in Architecture, are a certain kind of Steps (made on a flat Roof) to walk upon, a Way of Building, much used in *Italy*; the Roof is not quite flat, but a little raised in the Middle; and those Steps, or Drips, lie each a little inclining to the Horizon.

Drops, in Architecture, are an Ornament of the *Doric* Order, underneath the Triglyphs, representing Drops, or little Bells.

EA EC EGELEMEN

E A

EAVES, is the Margin of the Roof of a House, viz. that part of the Roof that hangs over without the Walls.

Echinus, is sometimes used to signify the Quarter Round; but more commonly that part of it, which includes the Ovum, or Egg, it comes from the Greek *Echinus*, the Shell of a Chesnut.

Eggs, See Anchors and Quarter Rounds.

Elaboratory, a Place to work in; properly a Chymist's Work-House, or Shop.

Embossing, in Architecture, is a kind of Sculpture, or Engraving wherein the Figure sticks out from the Plane whereon it is engraven, and according as it is more or less protuberant, is called by the *Italians* Basso, Mezzo, or Alto-relievo, used by the *English*, Bass-relief, Mean-relief, or High-relief.

Embrasure, in Architecture, is the Enlargement that is made in a Wall on the inside of a Window, or Gate; to give the more Light, or for the more Convenience of the Gate or Window.

Entablement, or *Entablature*, by *Vitruvius*, and *Vignola*, is called Ornament, and signifies the Architrave, the Frieze, and the Cornice together; it is likewise called *Trabiation*, and is different in the different Orders. The Word seems borrowed from the Latin, *Tabulatim*, a Cieling; because we suppose the Frieze to be formed by the Ends of the Joists which bear upon the Architrave.

EN EP EU EY FA

Entersole, sometimes called *Mezanine*, is a kind of low Story, at the Top of a Building for lodging Servants, &c.

Entry, in Achitecture, is a Room designed only (or chiefly) for Passage to and fro, betwixt other Rooms, or from the outer Door into the House.

Epistyle-Tylium. As Frieze.

Eurithinia, a Term of Architecture used by *Vitruvius*, by which he intends only that agreeable Harmony, that ought to be between the Length, Breadth, and Height of each Room in a Fabrick.

Eustyle, is the best Manner of placing Columns, with regard to their Distance, which *Vitruvius* made to be two Diameters and a Quarter; the Word is compounded of *Eus*, Good, and *Stylos*, a Column.

Eye-brow, as List or Fillet. *Vide* Capital.

Eye, in Architecture, is the Middle of an *Ionic* Volute, or Scroll, cut in the Form of a Rose.

F A

FABRICK, a Church, a House, or any other Building.

Face, in Architecture, is any Member that has a great Breadth, and but small Projecture, as the Architrave in the Front of a Building.

Face of a Stone, by which Workmen mean that superficies or plain of the Stone, that is to lie in the Front.

Facia, or *Fascia*, Mr. Perrault says it signifies any flat Member; as the Bands of an Architrave, &c. There are some who write it *Fasce*, grounded upon a Latin Word *Fascia*, a large

F E F I F L

Riband, which *Vitruvius* makes use of on the like Occasion.

Feather-Edged, Boards, or Planks, that are thicker on one Edge, than on the other.

Felling of Timber, the proper Season usually commences about the End of *April*, because then the Bark rises most freely, and if there be a Quantity to be felled, the Statute obliges to fell it then, the Bark being so useful for the Tanners.

Fence-Walls, Walls of Brick, or Stone, made round Yards, &c. See *Walls*.

Festoon, an Ornament of carved Work, in the Manner of a Wreath, or Garland of Flowers, or Leaves twisted together, thickest at the Middle, and suspended by the two Extremes, whence it hangs down with a graceful sweep.

Fillet, is any little square Moulding, which accompanies, or crowns a larger.

Fire-Stone, *Ryegate Stone*, called *Fire-Stone*, is a sort of Stone very good, and much used for Chimney Fire-Hearths, Ovens, Stones, &c.

Flemish-Bricks, are a sort of Bricks brought out of *Flanders*, and used for Paving; being much neater and stronger than Common or Clay-Bricks, they are of a yellowish Colour, and each Brick is $6\frac{3}{4}$ Inches long, $2\frac{1}{2}$ Inches broad, and $1\frac{1}{4}$ Inches thick.

Floating, a Term used by *Plasterers* for their best *Ceilings*.

Floors, a Floor, in Architecture, is the bottom Part of a Room, on which we walk. Floors are of several Sorts; some are of Earth, some of Bricks, some of Stone, and some of Wood. Carpenters, by the Word

F L F O

Floor, understand as well the framed Work of Timber, as the boarding over it.

Flush, a Term used by *Carpenters*, when the Work is even or smooth; also in *Masonry*, it signifies the breaking off of any Part of the Stone.

Flutes, or *Fluteings*, in Architecture, are the Hollows made in the Body of a Column; the *Doric*, *Ionic*, *Corinthian*, and *Composite* Columns, are commonly Fluted, or made with Flutes, or Hollows, running along the Body of the Column, from the Base to the Capital.

Flyers, are Stairs made of an oblong Square, whose fore and back-sides stand parallel to each other; and so are their Ends: The second of these Flyers stand parallel behind the first; the third behind the second, and so of the rest. If one Flight carry them not to the intended Height, then there is a broad Half-pace, from whence they begin to fly again as the first.

Foliage, in Architecture, and Sculpture, is Work wrought in Branches and Leaves.

Foot-pace, or, as some call it, Half-pace, is a Part of a Pair of Stairs, whereon, after four, six, or more Steps, you arrive to a broad Place, where you may take two or three Paces before you ascend another Step, thereby to ease the Legs in ascending the rest of the Steps.

Foundation, the lowest Part of a Building (generally laid under Ground) upon which the Walls of the Superstructure are raised. This Word is also sometimes taken for Public Buildings erected for pious Uses.

I

Fountain,

F O R F U

Fountain, an Artificial Spring of (or Well to contain) Water in a Garden; whither the Water is brought in Pipes of Lead, &c. and commonly made to spout out of the Mouths, or other Part of Images.

Framing of a House, is the Carcase, Flooring, Partitioning, Roofing, Ceiling, Beams, Aslring, &c. and indeed all that is done by the Carpenter.

Freeze, or *Frieze*, a large flat Member, which separates the Architrave from the Cornice. See its Etymology under the Word *Zophoros*.

Fresco, a way of Painting or Plastering (or rather both) upon Walls, to endure the Weather, and representing Birds, Beasts, Herbs, Fruits, &c. in Relief.

Frett-Work, a plain Bordering round Ceilings, Picture Frames, &c. being made with divers Fillets or Bands, and affording a great Variety of Figures by their Turnings.

Frigeratory, a Place to make or keep Things cool in.

Front, or *Frontispiece*, the Face, or Foreside, of a House. See *Portal*.

Frowey, Timber is said to be frowey, when it is evenly tempered all the Way, and works freely without tearing.

Funnels of Chimneys, is the Shaft, or smallest part of them (where they are gathered into their least Dimensions) upwards.

Furrings, among Workmen, is the making good of the Rafter's Feet in the Cornice, *i. e.* when Rafter's are cut with a Knee, these Furrings are Pieces that go strait along with the Rafter, from the Top of the Knee to the Cornice: Also when Rafter's

F U G A G I G L

are rotten, or sunk hollow in the Middle, and Pieces cut thickest in the Middle, and to a Point at each End, are nailed upon them to make them strait again; the putting on of those Pieces, is called *Furring the Rafter's*; and those Pieces so put on, are called *Furrings*. The same Term is used for *Joists*, which being by Time sunk hollow in the Middle are furred up strait.

Fust, from the Latin *Fustis*, a Club, signifies the Trunk, or Shaft of a Column, being that Part comprehended between the Base and the Capital.

G A

GABLE-END, in Architecture, the Gable-End of a House, is the upright triangular End of the Roof.

Gain, the bevelling Shoulder of the Joist, or other Stuff, is said to gain by being longer.

Galleries, are long narrow Rooms, made on the Sides or Fronts of Houses; they serve for walking, eating, and other Divertisements.

Gard-Manger, from the *French*, a Store-House, or Room to set Meat in.

Gavel, a Word used by some, by which they mean the same as *Gable*.

Girding-Beams, is used by some Workmen to signify the same as

Girders, which are some of the largest Pieces of Timber, in a Floor, the Ends of them are, for the most part, framed into Summers, or Breast Summers, and the Joists are framed in at one or both Ends to the Girders.

Glass, a transparent Body, made by Art of *Flints*, *Sand*, and *Asbes*, and

G O G R G U

and of this there are many Sorts, as *Crown Glass*, *French or Normandy Glass*, *German Glass*, *Newcastle Glass*, *Bristol Glass*, *Looking Glass*, and *Jealous Glass*, which last is of that Nature that it cannot be seen thro', yet admits of the Light thro' it.

Gothic, Architecture, is that which is far removed from the Manner and Proportions of the Antique, having its Ornaments wild and chimerical, and its Profiles incorrect.

Gradatory, is derived from the Latin, and is used to signify a Place to which we go up by Steps, particularly an Ascent from the Cloister, to the Choir in some Churches.

Grainery, a Place to lay up Corn in.

Grange, a French Word signifying a Building which hath Barns, Stables, Stalls, and other necessary Places for Husbandry.

Ground-Plat, or *Plot*, a Piece of Ground, which a Building is to be erected upon.

Groove, a Term used by Joiners, to signify the Channel that is made by their Plough in the Edge of a Moulding, or Stile, or Rail, &c. to put their Pannels in, in Wainscotting.

Guttering, in Carpentry, is the Boarding, and Bearers to lay the Lead on in the Fronts or Middle of the Roof.

Gutter-Tiles, are in Form, as they appear at a Distance, a kind of a Triangle, having one side convex, but this is whilst they are flat and plain before they are bent fit for Use.

H A H E H I

H A

HAIR, the Hair here mentioned, is *Bullocks-Hair*, such as is used in Mortar for Plaister.

Hangs-Over. Vide *Batter*.

Headers, a Term among *Bricklayers*, when Bricks are laid Endways in a Wall, but when Lengthways they call them *Stretchers*.

Heads, a Term used by *Bricklayers*, by which they mean half a Tile in Length, but to the full Breadth of a Tile; these they use to lay at the End of a Roof.

Healing, by this Word is understood the covering of the Roof of any Building, which is of various kinds, viz. 1. Lead. 2. Tiles. 3. Slate. 4. *Horsham* Stone. 5. Shingles. 6. Reed. 7. Straw.

Heel, an inverted Ogee.

Helix, or *Urilla*, is a little Volute Caulicole, or Stalk under the Flower of the *Corinthian* Capital.

Hinges, are those necessary Appendages by which all Doors, all Lids of Boxes, Chests, Trunks, &c. make their Motion, either of opening, shutting, or folding.

Hips, are those Pieces of Timber which are at the Corners of a Roof, they are a great deal longer than the Rafters, by Reason of their oblique Position, and they are placed not with a right or square Angle, but a very oblique one; and by Consequence, they are not (or at least ought not) to be square at any Angle (as Rafters are) but Bevel at every one of them, and which is yet more, as Rafters have but four Plains, these commonly have five: They are by Country-Workmen usually called

1 Corners;

H O H Y J A

Corners; and some call them principal Rafters, and others Sleepers; the Truth is, Hips and Sleepers are almost the same; only the Sleepers lie in the Vallies, (and join at the Top with the Hips) but those Surfaces, or Plains, which make the back of the Hip, are the under-side of the Sleeper.

Hollow, a Term in Architecture, by which is meant a concave Moulding, being about a Quadrant of a Circle; by some it is called a Caisement, by others an Abacus.

Horsbam-stone, is a kind of thin broad Slate, of a greyish Colour, much used in some Parts of *Sussex*, not only to heal or cover Churches and Chancels, but some great Houses also.

House, a Habitation or Place built with Conveniences to shelter a Man's Person and Goods from the Inclemencies of the Weather, and the Injuries of ill-disposed Persons.

Houfing, a Term used by some Bricklayers, for when a Tile or Brick is warped, or cast crooked, or hollow, in burning, they then say, *Such a Brick, or Tile, is Houfing*: Tiles are apt to be Houfing, or Hollow, on the struck Side (or that which was upmost in the Mould) and Bricks on the contrary Side.

Herperthyron, a Greek Word, signifying the Lintel, or Cap-piece of a Door-Case.

Hypotrachelium, or *Hypotrachelion*, the same as *Frieze*.

J A

J *AUMBS*, Door-Posts; also the upright Posts at the Ends of Window-Frames, and Chimneys,

I C I M I N J O J U K E

are so called. *Jambe* is a French Word, and signifies a Leg.

Ichnography, a Description, or Draught of the Platform or Ground-Work of a House, or other Building.

Impost, is a Term in Architecture, which I understand to be the Capitals of Pilasters, that support Arches. It comes from the Italian *Impesto*, surcharged or burdened with, or laid upon, take it either way, the Name expresses the Thing.

Indigo will grind very fine, and lie with a good Body, and is much used in Painting, &c.

Intercolumniation, is the Space between two Columns, which, in the *Doric* Order, is regulated according to the Distribution of Ornaments in the Frieze; but in the other Orders, according to *Vitruvius*, is of five different Kinds, viz. *Picnostyle*, *Sistyle*, *Eustyle*, *Diastyle*, and *Arcestyle*. This the Latins express by their Word *Intercolumnium*.

Interduces, in Architecture, are those smaller Pieces of Timber, that lie horizontally betwixt the Summers, or betwixt them and the Sill, or Rafting.

Joysts, in Architecture, are those Pieces of Timber, framed into the Girders and Summers, on which the Boards of the Floors are laid.

Juffers, a Term used by some Carpenters, for Stuff about four or five Inches Square, and of several Lengths. Also Quarters.

K E

K *ERK*, the sawn away Slit, in a Piece of Timber, or Board, the

KN LA LELILOMA

the Way made by the Saw, is called a Kerf.

Knee, a Piece of Timber cut crooked with an Angle, is called a Knee-Piece, or Knee-Rafter.

L A

LABORATORY. See Elaboratory.

Laths for Building are long, thin, and narrow Slips of Wood used in Tying or Ceilings, and are of three Sorts, *viz.* Heart of Oak, Sap Laths, and Deal Laths.

Lead, is a Material used in Buildings for Flatts, Gutters, Pipes, Cisterns, Sinks. &c. and is well known, so needs no Description.

Lintels, (in Stone and Brick Buildings) are the Pieces of Timber, that lie Horizontally over the Tops of Doors and Windows.

Lift, and *Liftella*, is a little square Moulding, serving to crown or accompany a larger, or, on Occasion, to separate the Fluteings of a Column. It is sometimes called a Fillet, and sometimes a Square. It comes from the Italian Word *Lifta*, any kind of Lift or Selvage: Also a Board is said to be *Lifted* when the Sap on the Edges is sawn away.

Lobby, as *Anti Chamber*.

M A

MANTLE, in Architecture, is the Head-piece on the Jaumbs of a Chimney-piece, either of Stone, Wood, or the like.

Marble is a Kind of Stone, extremely hard, firm, and solid, dug out of Pits and Quarries, it takes a beautiful Polish, and is much used

MA ME MI MO

in Ornaments of fine Buildings, as Columns, Statues, Chimney-pieces, &c.

Of this Stone there is many Kinds, as, *Black and White Marble, Purple Marble, Egyptian Marble, Black and Yellow Marble, Statuary Marble, &c.*

Masonry, is a Branch of Architecture, consisting in the Art of Hewing, Squaring, and Moulding of Stones for the Use of Building, or may be understood for the Assembling and Joining Stones together with Mortar.

Membretto, a Pilaster that bears up an Arch.

Metops, is the square Interval between the Triglyphs of the *Doric* Frieze, which, among the ancients, used to be adorned with the Heads of Beasts, Basons, Vases, and other Instruments used in sacrificing.

The Beauty of these Metops, consists in their Regularity; that is, in their being perfect Squares; and yet when they are really Square, they appear to be less in Height than in Breadth; which is owing to the Projecture of the little Bandelet, wherein they terminate underneath, that hides a small Part of their Height; for this reason *M. le Clerc* is for making the Metops a Minute or two more in Height than in Breadth; being of Opinion, they ought rather to appear Square, without being so, than really be Square, without appearing so.

Minute, is usually the sixtieth Part of a Module.

Mitchels, Purbec Stones for paving, picked all of a Size, from fifteen Inches Square, to two Feet.

Model, in Architecture, is particularly used in Building for a *Pattern* made

M O

made in Wood, Stone, Clay, or other Matter, with all its Parts and Proportions in small, in order to give an Idea of the Effect it will have in large, when executed.

Modern, this Word, in its genuine Meaning, is only applicable to such Architecture as partakes partly of the *Gothic*, retaining somewhat of its Delicacy and Solidity; and partly of the *Antique*, whence it borrows Members and Ornaments, without any Proportion or Judgment.

Module, a Measure made use of to regulate the Proportions of the several Members of Columns: In all the Orders 'tis the whole Diameter: A Module is commonly supposed to be divided into sixty equal Parts, called Minutes: Module comes from *Modulus*.

Modillions, in Italian *Modiglioni*, (a sort of Cantalivers) are little inverted Consoles under the Soffit, or bottom of the Drip, in the *Ionic*, *Composite*, and *Corinthian*, Cornices, and ought to correspond to the middle of the Columns. These are particularly affected in the *Corinthian* Order, where they are always enriched with carved Work. In the *Ionic* and *Composite*, they are more simple, having seldom any Ornament, excepting sometimes a single Leaf underneath. In *Latin* they are called *Mutuli*.

Moreſk-Work, a kind of Antic-work, in Painting and Carving, after the manner of the Moors (whence it has its Name) consisting of several Grotesco's wherein there is no perfect Figure, either of Men, or other Animals, and wherein there is a wild Resemblance of Birds, Beasts, Trees, &c. intermingled.

M O M U N A

Mortar, in Architecture, is a Preparation of Lime and Sand, mixed with Water, serving as a Cement, and is used by Maſons and Bricklayers in Building, and to a Rod of Brickwork is required a hundred and a half of Lime, and two Load of Sand; and for Tiling, four Bushels of Lime, and six or eight Bushels of Sand, will be sufficient for laying a Thousand of Tiles, which is about a Square and $\frac{1}{2}$; so that a Square of Tiling will require about $2\frac{2}{3}$ of Lime, and about five Bushels of Sand.

Mosaïque, or *Mosaical-Work*, is a curious kind of Work, consisting of small inlaid Pebbles, Cockles, and Shells of sundry Colours; and (of late) likewise with pieces of Glass figured at Pleasure.

Mouldings, under this Name are comprehended all those Jettings, or Projectures, beyond the naked of a Wall, Column, &c. which only serve for Ornament; whether they be square, round, strait, or crooked. Of these there are seven kinds, more considerable than the rest, *v.z.* the Doucine, or Cima-Recta; the Talon, or Heel; the Ovolo, or Quarter-round; the Plinth, Astragal, the Denticle, and the Cavetto.

Munions, in Carpentry, are the short upright Posts that divide the several Lights in a Window-Frame.

Muniment, Room, a place for the keeping of Seals, Charters, Evidences, &c.

N A

NAILS, in Building, are small Mettaline Members well known, but they are very numerous in

NE NI NO OB OG OP OR

in their *Sorts*, as has been shewn in this Treatise. The No. required for *Lathing* is about 500 to a Bundle of five feet Laths, and 600 to a Bundle of four feet Laths at six score to the hundred, and for flooring is required 200 to a Square. *Nails* are made tough by heating them in a Fire-shovel, or the like, and putting some Tallow or Grease on them.

Newel, the upright Post that a Pair of Winding-Stairs turns about.

Niches, the hollow places in a Wall, wherein Statues are set.

Noseings, are Parts of the Sides of a Marble Chimney-piece, also the Edges or Front Parts of Steps, or at the foot of a Cove, &c.

O B

O *BELISK*, is a quadrangular Pyramid, very tall and slender, raised in a public Place to serve as a Monument of some memorable Action.

Og, *Ogee*, or *Orgive*, a sort of Moulding in Architecture, consisting of a Round and a Hollow, like an S.

Optick Glasses are those that are ground either Concave or Convex, so as to collect or disperse the Rays of Light; by means of which *Vision* is improved, and the Eye strengthened, preserved, &c.

Oratory, in Architecture, is a Closet or small Apartment near a Bed-Chamber, furnished with a little Altar, or Image, for private Devotion (among the Romanists.)

Orders, in Architecture, are the different Forms and Proportions of Columns, &c. There are five Orders (commonly reckoned) in Architec-

OR OV PA

ture, viz. the *Tuscan*, *Doric*, *Ionic*, *Corinthian*, and *Composite*.

Orlo, the Plinth, or Square, under the Base of a Column, or under the Base of its Pedestal.

Ornaments, by which is understood all the Sculpture or carved Work, wherewith a piece of Architecture is enriched.

Orthography, in Architecture, signifies the Front or (any other) upright Side of a House; or the Draught on Paper, of those parts of a House.

Ovolo, or *Echinus*.

PA

P *AINTING*, a Work in Building well known, for the Particulars of which, see the foregoing Treatise on Ditto.

Palisade, or *Pasado*, is an open Fence either of Wood or Iron for the displaying of the Prospect of a House, Garden, &c. or in Fortification.

Pallification, a Term in Architecture, signifying the piling of the Ground-work, or strengthening of the Ground-work, with Piles of Timber driven into the Ground, when they build upon a moist and marshy Soil.

Pannel, (in Joinery) is a square piece of thin Wainscoting, sometimes carved, and framed, or grooved in between thicker Pieces.

In Masonry is one of the Faces of a hewn Stone.

Pantheon, in Architecture, is a Temple or Church of a circular Form, dedicated to all the Gods, or all the Saints.

P A P E

Pantry, a Room for the keeping of Victuals, a Store-Room.

Parallel-Ruler, is an Instrument of Wood and Brass for drawing of parallel Lines, and is described in Page 19, and Plate III. Fig. D.

Parapet, from the Italian *Parapetto*, a Save-breast, is a little Wall, or sometimes a Rail, serving either as a Rest for the Arm, or as an Inclosure about a Key, Bridge, Terraces, &c.

Parastatæ, Pilasters which stand alone, not adjoining to the Wall, and which the French call *Isolées*, or *Insulate*, from *Insula*, an Island, as I take it.

Pargetting, in Architecture, signifies the Plastering of Chimney-funnels, sometimes it is used to signify the Plaster itself.

Parlour, a fair lower Room designed for the Entertainment of Company.

Passage, an Entry or narrow Place serving for a Thorough-fare into other Rooms.

Pavement, a Lay of Stone, Brick, or other Matter serving to strengthen the Ground of divers Streets, or other Places, for the more commodious walking thereon.

Pediment, in French, *Fronton*, from the Latin *Frons*, the Forehead, is an Ornament that crowns the Ordonance, finishes the Fronts of Buildings, and serves as a Decoration over Gates, Windows, Niches, &c. It is ordinarily of a Triangular Form; but sometimes makes an Arch of a Circle. *Vitruvius* calls it *Fastigium*.

Pedestal, is a square Body with a Base and Cornice, serving as a Foot for the Columns to stand upon; and having, according to *Vignola*, the

P E P I

third part of the Height of its Column. It is varied in the different Orders.

Pediments, are the crowning frequently seen over Gates, Doors, Windows, and Niches, and sometimes over entire Orders of Architecture. The Ridges of Houses were what gave Architects the first Idea of this noble Part.

Pentadoron, a kind of Bricks so called.

Perquetting, a Floor laid, or composed of divers small Figures, as Squares, Rhombs, &c.

Periptere, in the ancient Architecture, is a Building encompassed round with Columns. The Word comes from the Greek *Peri*, about, and *Pteron*, a Wing.

Perrons, are Steps raised before the Doors of great Houses.

Persian Order, is that which has Figures of Persian Slaves, to support the Entablement instead of Columns, as the *Cariatid* Order has the Figures of Women serving for the same purpose. The former Columns are usually like robust Men, with long Beards, and such Figures are more fit to represent an unhappy Slavery than those of Women. The Character of Slavery is expressed in these Figures, either by tying their Hands before, or else behind their Backs. Columns of this kind, may very properly be used in a Gallery of Arms, &c. Princes Palaces; in which Case they may be made *Gigantic*, and their Entablature *Doric*.

Piazza, in Architecture, commonly called *Piache*, an Italian Name for a Portico, it signifies a broad open Place or Square, whence it became applied to Walks or Porticos.

P I P L

of Pillars around them, like those of *Covent Garden*, the *Royal Exchange*, &c.

Piedroit, in Architecture, is a square Pillar, that is partly within the Wall.

Pillar, is a kind of round Column, disengaged from any Wall, and made without any proportion; being always either too massive, or too slender; such are the Pillars which support the Walls of *Gothic Buildings*; in Latin they are called *Pile*.

Pilasters, in Architecture, are a kind of half Columns (standing against a Wall) with Bases and Capitals, as Columns have; but differing from Columns in this, that Pilasters are square, but Columns round.

Pitch, by this Term, Architects understand the Angle, a Gable-End (and consequently the whole Roof of a Building) is set to.

Platebands, the Lifts, or Fillets, being the Flutings of the *Ionian*, *Corinthian*, and *Composite* Columns. They are each in Breadth a quarter of the Flute. *Platebands* are also a square Mould set at the end of an Architrave of the *Doric* Order. Plateband, *Perrault* says, is a square Moulding, having less Projecture than Height.

Platform, this Word, in Architecture, is sometimes used to signify the Ichnography, or Draught of the Ground-Plot of a House, but more commonly for a broad, smooth, and open Walk upon the top of any Building. *Platform* is also a Row of Beams, which support the Timber-work of any Roof, and lie on the top of a Wall, where the Entablature ought to be raised.

P L P O

Plafond, a French Word, for the Cieling, or Roof of a Chamber, or other Room, &c. the same as *Soffit*.

Plastique, or *Plastic Art*, is a Branch of Architecture, that is not only comprehended, under Sculpture, but is indeed very Sculpture itself; but with this Difference; that the Plaisterer, by his plastic Art, makes Figures by Addition, but the Carver by Subtraction.

Plinth, is derived from the Greek, *Plintbos*, a square Brick, and is in Architecture, a square Piece, or Table, under the Mouldings of the Bases of Columns and Pedestals.

Plumbery, an Art belonging to Architecture, it being the Art of working in Lead.

Porphyry, a fine reddish Marble, streaked with divers Colours. *Pliny* says, this kind of Marble comes out of *Egypt*, where there are large Quarries of it.

Portland-Stone, is much used in Building, and much softer and whiter than *Purbec*.

Portal, an ancient Term in Architecture, it was used to signify a little square corner of a Room, shifted off from the rest of the Room by the Wainscot. The Word comes from the French *Portail*, a Gate, or Entrance, because through it they enter into the Room.

Portails, the Decoration of the Face, or Front, of a Church, called also Frontispiece.

Portico, a kind of a Gallery, raised upon Arches, where People walk under Shelter, it has sometimes a Soffit, or Cieling; but is more commonly vaulted. Also the Front of a Church, &c. where Columns are detached from the Building, as the West;

P R P U

West-end of *St. Martin's, St. Paul's, Covent-Garden, &c.*

Priest-Posts and Stiles among Carpenters, are such as come in between Principals.

Profile, in Architecture, is a Draught representing the Breadth, Depth, and Height of a Fortification, or Building, but not the Length; which properly belongs to a Plan, or Ground-Plot; so that it is in a Manner, the same with a Prospect of a Place, or Building, viewed sideways, and expressed according to the Rules of Perspective in such a Case.

Project, all Mouldings, &c. are said to project, when they jutt out, or are beyond the Superficies.

Proportion, is the Justness of the Members in each part of a Building, and the Relation they bear to the whole.

Pudlays, pieces of Stuff, to do the Office of Leavers, or Hand-Spikes.

Pulvinata, a Frieze, swelling like a Pillow.

Punchins, short pieces of Timber, placed under some considerable Weight to support it. They commonly stand right between the Posts, they are shorter and slighter than either principal Posts, or priest-Posts; those that stand on each side of a Door, are called Door-Punchins.

Purlins, those pieces of Timber, that lie a-cross the Rafters on the inside, to keep them from sinking in the middle of their Length.

Purbec-Stone, is a hard greyish Stone, almost like *Sussex* Petties. They are used for Pavements.

P U P Y Q U

Putlogs, pieces of Timber, or short Poles, (about seven Feet long) used by Masons and Bricklayers in building of Scaffolds to work on. The Putlogs are those pieces which lie horizontal to the Building, one end lying into it. And the other end resting upon the Ledgers; which are those pieces that lie parallel to the side of the Building.

Pycnostyle, this Term is used, when the Columns are ranged so close to one another, that the Inter-columniation does not exceed a Diameter and an half.

Pyramid, from the Greek, *Pyr*, Fire, or Flame, this being pointed like that. It is a solid Body, whose Base is either square, triangular, or polygonous, and which from that Base diminishes continually to its Vertex, or Top.

Pyleing, the Ground to Foundations.

Q U

QUARRY (of Stone) a place whence Stones are dug out, or (of Glass) a piece of Glass cut in a Diamond form. Quarries of Glass are of two kinds, *viz.* square and long; and these again are of different Sizes, as 8's, 10's, 12's, 15's, 18's, and 20's; that is, 8 Quarries of 8's, make a Foot of Glass, and so does 10 Quarries of 10's, 12 of 12's, &c. But all Quarries, of what Size soever, are cut of one sort of Angle, for the square Quarries, and another for the long Quarries; the acute Angle of the square Quarries being seventy-seven Degrees and nineteen Minutes; and the

Q U R A

the acute Angle of the long Quarries, sixty-seven Degrees and twenty-two Minutes.

Quarters, in Architecture, all those slight upright pieces between the Punchins and Posts, which serve to lathe upon, are called Quarters.

Quarter-Round, by this Name the Workmen call any Moulding, whose Contour is a Circle, or approaching to a Circle; using this Term, wherever the Architects use that of Egg, or *Ovolo*.

Quirk, in Architecture, signifies a piece taken out of any regular Ground-Plot, or Floor; as if the Ground-Plot were a square, or an oblong, and a piece be taken out of one Corner of it, for a Court, or Yard, that piece so taken out, is called a Quirk.

Quoins, or *Coins*, the Corners of Brick, or Stone Walls: Also the Stones in the Angles of Buildings, whether plain, rustic, or otherwise.

Quadrells, a sort of Artificial-Stones, (so called from their form, they being square,) made of a chalky whitish, and pliable Earth, and dried in the Shade.

R A

RAFTERS are those pieces of Timber, that (standing by pairs, on the Raising) meet in an Angle, at the top, and compose the Roof of a Building.

Raiser, a Board edge ways, under the foreside of a Step.

Raising-pieces, are pieces that lie under the Beams upon Brick, or Timber, by the side of the House.

R A R E R I R O R U S A

Range, the side of any Work that runs strait, without breaking in Angles, is said to range, or run Range: Thus the Rails of one strait side of Wainscoting, is said to run Range.

Repository, a Store-house, or Place to keep Things in; more peculiarly by Architects 'tis used to signify such Places as are built for the laying up of Rarities, either in Painting or other Arts.

Return, the side that falls away from the foreside of any strait Work, is called the Return.

Ridge, the meeting of the Rafters on the Top of the House, is called the Ridge.

Roof, the covering of a House; but the Word is used in Carpentry, for the Timber-work of the Covering.

Rose, is an Ornament, cut in the Spaces, which are between the Modillions, under the Plat-Fonds of Cornices, and in the middle of each Face of the Abacus, in the *Corinthian* and *Composite* Capitals.

Rustick, a manner of Building, quite rude, rather in Imitation of Nature, than according to the Rules of Art.

S A

SAGITTA, in Italian, *Sagitta*, (an Arrow) signifies what we call the Key-piece of an Arch.

Salon, is a kind of Hall, in the middle of a House, or at the head of a Gallery, or a large Apartment, which ought to have a *Symmetry* on all its sides; and as its height usually takes in two Stories with two

S A S C

two Rows of Windows, the bottom of its Plat-Fond ought to be arched; as is practised in some of the Palaces in *Italy*.

Saffita, or rather *Soffita*, or *Soffit*, an Italian Word (from *Subfixum* in Latin) a sort of Cieling. In ordinary Buildings, it is taken for the Boards over the tops of Windows, opposite to the Window-Boards at the Bottom. In great Edifices it signifies the Cieling or Wainscot of any Apartment formed by cross Beams, or flying Cornices, and having the square Pannels of its Compartments enriched with Sculpture, Painting, and Gilding, as we may observe in the Basiliques and Palaces of *Italy*.

Sand, is a fine, hard, gravelly Earth, of great Use in Building, and other Works.

There are three Sorts of Sand distinguished by the Places whence they are drawn, *viz.* Pit-Sand, River-Sand and Sea-Sand, and is a principal Ingredient in making Mortar.

Sawing, the Application of the Saw in dividing of Timber, &c. into Boards.

Scantling, the Size that any Timber is *designed* to be cut to.

Scenography, from the Greek *Skene*, a Tent, or Tabernacle; and *Grapho*, to draw, or describe; is a Model, or Description of the Front and Sides of a House, or the Art of rightly contriving Draughts in Architecture.

Scima-Reversa, an O. G. with the Hollow downwards. *Vide* O. G.

Scotia, a Member of Architecture; 'tis hollow like a Semicircle. It is

S C S E S H

particularly placed in the Bases of Columns, between the Torus, and the Astragal, and sometimes 'tis put under the Drip in the Cornice of the *Doric* Order. *Scotia*, from the Greek *Skotos*, Darkness, signifies, says M. *Perrault*, a hollow obscure Moulding, between the Torus of the Base of a Column.

Scribe, a Term used by Carpenters and Joiners, when they are to fit one side of a piece of Stuff, against the side of some other piece of Stuff, and the side of the piece they are to fit it to, is not regular.

Sculpture, the Art of Carving in Wood or Stone, &c.

Sewers, in Architecture, are Conduits, or Conveyances, for the Soilage and Filth of a House.

Sells, in Architecture, are of two kinds, *viz.* Ground-Sells, which are the lowest pieces of Timber, in a Timber building, on which the whole Superstructure is erected. and Window-Sells, commonly called Window-Soils, which are the bottom pieces in a Window-Frame.

Shaky, or *Shaken*, such Stuff as is cracked, either with the Heat of the Sun, or the Drought of the Wind, is called Shaky, or Shaken Stuff.

Shingles, are small pieces of Wood, or quartered oaken Boards, sawed to a certain scantling; but they are more usually cleft to about an Inch thick at one end, and made like Wedges, about four or five Inches broad, and eight or nine, and in some places twelve Inches long. They are used to cover Houses; but more commonly Churches and Steeples.

S H SK SL SO SP SQ ST

Steeple with, instead of Tiles, or Slates.

Shingling, the laying on of Shingles.

Shoulder, among Carpenters is the Sides or Butments of a Tennon.

Skirting-Boards, the narrow Boards fitted round the under side of Wainscot against the Floor.

Slabs, the out-side sappy Planks, or Boards sawn off from the sides of Timber; also the foot-piece to a Chimney-piece is called a Slab.

Slating, is the covering of Houses with Slate.

Sleeper, in a Roof, is the oblique Rafter that lies in a Gutter.

Sluces, Vents, or Drains for Water.

Solive, a French Word, signifies a Joist, Rafter, or piece of Wood, either slit or sawed, wherewith the Builders lay their Cielings.

Spira, is properly Latin for the fold of a Serpent laid at rest, or the Coil of a Cable-rope, &c. In Architecture 'tis sometimes used for the Base of a Column, this making a Figure not unlike those.

Square, a certain Measure, made use of in measuring several Artificers Work, consisting of a hundred superficial Feet.

Stairs, are of various Sorts, as Strait-Flyers, Square-Flyers, Triangular-Flyers, French-Flyers, Winding Stairs, and Mixt-Stairs, for which see Part III.

Statues, are imbossed Figures, either in Stone, Metal, or Wood, representing some Person distinguished by his Birth or Merit, &c. and either serving as an Ornament of a Palace, or exposed in some public Place, to perpetuate the Memory

S T S Y

of the Person it is intended to represent.

Stiles, in Joinery, the upright pieces that go from the bottom to the top in any Wainscot, or the like.

Stillatory, the Room that a Still or Limbeck is set up in for distilling Strong-Waters, &c.

Stilobatum, the Body of the Pedestal of any Column.

Stone, is a hard, solid, mineral Body, neither fusible nor malleable, formed in Succession of Time in the Body of the Earth.

Stove, a hot House, for preserving Exotic Plants, also a Kitchen Term for a sort of Furnace where they prepare Ragouts, &c.

Strait, a Term used by Bricklayers, it is half (or more, or less than half) a Tile in Breadth, and the whole Length: They are commonly used at the Gable ends, where they are laid at every other Course, to cause the Tiles to break Joint, as they phrase it, that is, that the Joints of one (Course) may not answer exactly to the Joints of the next Course, either above or below it.

Strings, are those Timbers which support the Steps of Wooden-Stairs.

Stuff, the Wood that Joiners work upon, they call, in general, *Stuff*.

Sylobatæ, the same as Pedestals, a Greek Word, from *Stylos*, a Pillar, and *Basis*, the Base or Foot thereof.

Summer-Tree, a Beam, full of Mortises for the Ends of Joists to lie in.

Symmetry, is the Comparison that runs between the Parts of a Building and the whole.

Systole,

SY T A T E T H

Systole, is that manner of placing Columns, where the space between the two first consists of two Diameters, or four Modules.

T A

T *ABERN*, a Cellar.

Talon, the same as Heel; a Moulding in Architecture.

Taper, all sorts of Stuff, or Work, that is smaller at one end than the other, and diminishes gradually, from the biggest end is said to be taper.

Tarrau, or *Tarras*, an open Walk, or Gallery, also a flat Roof on a House; also a kind of a coarse Plaster, durable in the Weather.

Tassels, pieces of Timber that lie under the Ends of the Mantle-Tree.

Tennon, a square end of a piece of Timber fitted into a Mortise.

Tetraordon, a kind of Brick so called.

Thatching, is the covering of the Roof of a House or Barn, with Straw or Reed.

Theatre, is a public Edifice or Place, whereon Plays or Shews are exhibited to the People; as in *Drury-Lane*, *Covent-Garden*, or *Lincoln's-Inn-Fields* Theatres.

Thermes, or *Termes*, a French Word, from *Terminus*, the Roman God of Boundaries, or Land-Marks, which they used to represent in a human Figure with half a Body, as if it proceeded out of a Sheath or Case. Those they fixed in the Earth as Land-Marks. In Architecture they serve as a kind of Symbolical Column.

T H T I T O T R

Thorough-Lighted, Rooms are said to be thorough-lighted when they have Windows at both ends.

Tiles, in Buildings, are a Sort of thin artificial Stones, used in the Roofs of Houses, &c. but more properly they are a kind of fat clayey Earth, moulded together, and dried and burnt in a Kiln.

There are various kinds of Tiles, known by several Names, as, Plain, Thack, Ridge, Roof, Crease, Gutter, Pan, Crooked, Flemish, Corner, Hip, Dormer, Scallop, Astragal, Traverse, Paving, and Dutch Tiles.

Timber, includes all kinds of Woods, felled and seasoned, or those kinds of Trees, which, when so prepared, are made Use of in Building by the *Carpenter*, *Joiner*, *Turner*, &c. and which chiefly are Oak, Elm, Beech, Ash, Firr, which is also called *Deal*; there is also *Walnut-Tree*, *Chestnut-Tree*, *Poplar*, *Aspen*, *Alder*, *Lime-Tree*, &c. but these are not accounted Timber.

Torus, a large round Moulding, in the Bases of Columns; the Word comes from the Latin *Torus*, a Bed; the Figure of this Moulding being not unlike that of the side of a Quill.

Transom, the piece that is framed across a double-light Window.

Traverse, a Term in Joinery, signifying to plain a Board, (or the like) across the Grain.

Triglyph, a Term of Architecture, the Word is originally Greek, and signifies a hollow Graveling, like Furrows, or Gutters. In Architecture, Triglyphs, are those kind of Stops, in the *Doric* Freeze, between the Metops.

Y

Trim,

TR TU VA VE UN VO

Trim, when Workmen fit a piece into other Work, they say they Trim in a-piece.

Trimmers, in Architecture, those pieces of Timber framed to the Joist, against the ways for Chimnies and Well-holes for Stairs.

Trunk, from the Latin *Truncus*, signifies the Fust, or Shaft of a Column, and the Die of a Pedestal, and is also used for bringing down Water from the House top.

Tusk, a Bevel Shoulder, made to strengthen the Tennon of the Joist, which is let into the Girder.

V A

VALLERS, the Gutters, over the Sleepers, in the Roof of a Building.

Vault, is a piece of Masonry, arched without side, and supported in the Air, by the artful placing of the Stones, which form it; its principal Use being for a Cover or Shelter; few Houses in modern Buildings are without them.

Vestible, among the Ancients, was a large open space before the Door, or at the Entry of a House, which they call *Atrium Populatum* & *Vestibulum*, being dedicated, as *Martinus* tells us, to the Goddess *Vesta*; whence he will have the Word derived, *i. e.* *Vestæ Stabulum*; it being usual for People to stop here, before they went within Doors.

Under-Pinning, by this Term is meant the bringing it up with Stone or Brick under the Ground-Sells of a Building.

Volute, from *Volvo*, to fold, is one of the principal Ornaments of the *Ionic* and *Composite* Capitals, re-

UR VO WA WE WI

presenting a kind of Bark, wreathed, or twisted into a spiral Scroll.

Urn, comes from the Latin, *Urna*, a Vessel to draw Water in, and signifies a low wide Vase, serving as a crowning over Ballustrades, and as an Attribute to Rivers, River Gods, &c. in the Grotto's and Fountains in Gardens.

Voussiors, the Stones that form the Arch; a French Word.

W A

WAINSCOT, the pannelled Work round about the Walls of a Room.

Wainscotting, the making and setting up of Wainscot.

Walling, the making of Walls, of what kind soever, is called Walling.

Wash-House, a Room to wash in.

Water-Table, in Stone, or Brick-Walls is a sort of Ledge, left out of the Wall, some eighteen or twenty Inches, more or less, above the Ground; at which place the Thickness of the Wall is abated, or taken in, on each Side, the Thickness of a Brick; in Brick-Walls, namely, two Inches and a Quarter; thereby leaving that Ledge, or Jutty, that is called a Water-Table.

Weather-Boarding, a Term in Carpentry, signifying the nailing up of Boards against Quarters.

Weather-Tiling, is the Tiling the upright sides of Houses.

Well-Hole, the Space left in a Floor, for the Stairs to come up through.

Withs, these are used by Thatchers to bind the Thatching-Rod to the Rafters.

XY XRSTOS

X Z Z O

X Y

X*YSTOS*, among the ancient Greeks was a Portico of uncommon length, either covered, or open, wherein the *Ableta* used to exercise themselves in running Races, and Wrestling. The Word is derived from *Xytbin*, to polish.

Z O

Z*OCOLO*, the same as Plinth, it is an Italian Word, and sig-

Z O

nifies a sort of Wooden Shoes, or Sandals from the Latin *Soccus*, the Buskins, wore by the ancient Actors. In Architecture, it is a square Body, less in Height than Breadth, and placed under the Mouldings of the Bases of Pedestals, &c. 'Tis called in English, *Socle*, or *Zocle*.

Zophorus, the same as Freeze, a large flat Member, which separates the Architrave from the Cornice. It is derived from the Greek *Zoophoros*, (i. e.) *Animal-bearing*; it being usual for Animals to be represented upon it.

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